

Economic Indicators
for the
Lakes and Coorong Fishery
2007/08

A report prepared for
Primary Industries and Resources South Australia

Prepared by



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Abbreviations

| | |
|--------|--|
| ABARE | Australian Bureau of Agricultural and Resource Economics |
| ABS | Australian Bureau of Statistics |
| CPI | Consumer Price Index |
| fte | full time equivalent |
| GRP | Gross Regional Product |
| GSP | Gross State Product |
| GVP | Gross Value of Production |
| PIRSA | Primary Industries and Resources South Australia |
| RBA | Reserve Bank of Australia |
| R&M | Repairs and Maintenance |
| SA | South Australia |
| SARDI | South Australian Research and Development Institute |
| SASQAP | South Australian Shellfish Quality Assurance Program |
| SFA | Southern Fishermen's Association |

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1. Introduction

All the major fisheries in South Australia (SA) operate in accordance with fishery management plans that determine the primary management objectives of the fishery. Economic performance indicators are a feature of these plans and annual reports on them are required by the Minister for Agriculture, Food and Fisheries to meet the obligations of section 7 of the *Fisheries Management Act 2007*.

This report, *Economic Indicators for the Lakes and Coorong Fishery, 2007/08*, is the sixth detailed economic indicators report prepared for the Lakes and Coorong Fishery, the first having been prepared for 2002/03 (EconSearch 2004b). The 2002/03 economic indicators were derived from a report prepared for the Southern Fishermen's Association (SFA), entitled *Lakes and Coorong Fishery: "Wild Fisheries with a Future", Current Economic Value and Value-Adding Opportunities, Final Report* (EconSearch 2004a), funded by the Commonwealth Department of Transport and Regional Services' Regional Assistance Program. The second and third reports, prepared for 2003/04 and 2004/05, respectively (EconSearch 2005a and 2006), provided an update of the survey based indicators. The fourth report, prepared for 2005/06 (EconSearch 2007), provided an update of the indicators based on a second survey of licence holders conducted in October 2006. The fifth report, prepared for 2006/07 (EconSearch 2008a), provided an update of the economic indicators based on the second licence holder survey.

For earlier years, a limited number of economic indicators for the Lakes and Coorong Fishery were prepared in conjunction with the River Murray commercial fishery. The first report, entitled *Economic Indicators for the SA Inland Waters Fisheries 1997/98*, summarised information obtained from SARDI Aquatic Sciences and PIRSA Fisheries (EconSearch 1999). The second to fifth annual reports, prepared for the years 1998/99 to 2001/02, respectively, provided an update of the 1997/98 economic indicators (EconSearch 2000, 2001, 2002 and 2003).

The objective of this report, *Economic Indicators for the Lakes and Coorong Fishery, 2007/08*, was to provide an update of the economic indicators based on the second licence holder survey.

The aim of all the studies has been to present a set of economic performance indicators for the fishery as well as to develop a consistent time series of economic information to aid management of the fishery in future years. The economic indicators detailed in this report include:

- gross value of production (catch and price);
- the cost of management of the fishery;
- financial performance indicators (income, costs, profit and return on investment);
- the economic impact of the fishery, both local and state;
- economic rent;
- external factors that influence the economic condition of the fishery;
- prices in local and interstate markets;
- contribution to the community; and
- a range of demographic and other indicators.

For purposes of comparison, summary economic indicators for all South Australian commercial fisheries, up to 2006/07, are presented in Appendix 3.

2. Method of Analysis and Definition of Terms

2.1 Survey of Lakes and Coorong Licence Holders, 2006

The questionnaire for the survey of licence holders was based on the survey conducted in 2003. The questionnaire for the survey was drafted by the consultants and subsequently modified after consultation with members of the Southern Fishermen's Association (SFA). The sampling frame for the survey included all licence holders in the Lakes and Coorong Fishery (36 licences in total)¹. The time period for which information was sought was the 2005/06 financial year.

Licence holders were sent an introductory letter from the President of the SFA outlining the project and seeking their support. Telephone calls were then made by an EconSearch representative to each licence holder seeking their participation in the survey. Interview times were arranged with willing participants. A copy of the questionnaire and other relevant information was posted to each participating licence holder prior to the interview. EconSearch representatives visited licence holders to conduct face-to-face interviews over the period 12 to 20 October 2006.

A total of 24 usable responses were collected, twelve licence holders did not provide a response to the survey for the following reasons:

- not contactable (3);
- not interested in participating in the survey (3);
- too busy to participate in the survey (1);
- minimal fishing days during 2006/07 and was unable to provide financial records (2); and
- only purchased licence recently and was unable to provide financial records (3).

A total of 24 useable licence holders represented two-thirds of the licences in the fishery.

2.2 Updating the Indicators, 2007/08

The 2007/08 economic indicators for the Lakes and Coorong Fishery were derived using a range of primary and secondary data and survey-based 2005/06 indicators. The following information was used to adjust the 2006/07 indicators to reflect the fishery's performance in 2007/08.

- SARDI data were used to reflect changes in catch size and its value between 2006/07 and 2007/08. Catch and value data were used to determine the gross income in the fishery.
- Information on the change in fishing effort (number of days fished) between 2006/07 and 2007/08 was used to adjust the costs of inputs that were assumed to vary with fishing effort. These inputs included fuel and repairs and maintenance costs.
- Price information from input suppliers was used to adjust prices that had changed, for example, fuel.

¹ There were 37 licences in the fishery in 2005/06 one of which was sold during that year. Accordingly, the sample for the 2005/06 survey was 36 licences.

- The consumer price index (CPI) for Adelaide was used to adjust the cost of inputs to reflect local levels of inflation (ABS 2008).

2.3 Definition of Terms²

Total Boat Income (TBI): refers to the cash receipts received by an individual firm and is expressed in dollar terms. Total boat income is calculated as catch (kg) multiplied by 'beach price' (\$/kg). Total boat income is the contribution of an individual licence holder to the GVP of a fishing sector or fishery.

Total Boat Variable Costs: are costs which are dependent upon the level of catch or, more commonly, the amount of time spent fishing. As catch or fishing time increases, variable costs also increases. Variable costs are measured in current dollar terms and include the following individual cost items:

- fuel, oil and grease for the boat (net of diesel fuel rebate)
- bait
- ice
- provisions
- crew payments
- fishing equipment, purchase and repairs (nets, pots, lines, etc)
- repairs & maintenance: ongoing (slipping, painting, overhaul motor)

Boat Gross Margin: is defined as *Total Boat Income* less *Total Boat Variable Costs*. This is a basic measure of profit which assumes that capital has no alternative use and that as fishing activity (days fished) varies there is no change in capital or fixed costs.

Total Boat Fixed Costs: are costs that remain fixed regardless of the level of catch or the amount of time spent fishing. As such these costs, measured in current dollar terms, are likely to remain relatively constant from one year to the next. Examples of fixed cost include:

- insurance
- licence and industry fees
- office & business administration (communication, stationery, accountancy fees)
- interest on loan repayments and overdraft
- leasing

Total Boat Cash Costs (TBCC): defined as *Total Boat Variable Costs* plus *Total Boat Fixed Costs*

Gross Operating Surplus: (GOS) is defined as *Total Boat Income* less *Total Boat Cash Costs* and is expressed in current dollar terms. GOS may be used interchangeably with the term Gross Boat Profit. A GOS value of zero represents a breakeven position for the business, where TBCC equals TBCR. If GOS is a negative value the firm is operating at a cash loss and if positive the firm is making a cash profit. GOS does not include a value for owner/operator wages, unpaid family work, or depreciation.

² Where possible definitions have been kept consistent with those used by Brown (1997) in the *Australian Fisheries Survey Report*.

Owner-operator and Unpaid Family Labour: in many fishing businesses there is a component of labour that does not draw a direct wage or salary from the business. This will generally include owner/operator labour and often also include some unpaid family labour. The value of this labour needs to be accounted which involves imputing a labour cost based on the amount of time and equivalent wages rate. In the above calculations this labour cost can be included simply as another cost so that Gross Operating Surplus takes account of this cost. Alternatively, it can be deducted from GOS to give a separate indicator called Boat Cash Income. Owner-operator and unpaid family labour is separated into variable labour (fishing and repairs and maintenance) and overhead labour (management and administration).

Boat Cash Income: is defined as *Gross Operating Surplus less imputed wages for owner-operator and unpaid family labour.*

Boat Capital: includes capital items that are required by the licence holder to earn the boat income. It includes boat hull, engine, electronics and other permanent fixtures and tender boats. Other capital items such as motor vehicles, sheds, cold-rooms, and jetty/moorings can be included to the extent that they are used in the fishing business. The fishing licence/permit value is included in total boat capital.

Depreciation: Depreciation refers to the annual reduction in the value of boat capital due to general wear and tear or the reduction in value of an item over time.

Boat Business Profit: is defined as *GOS less Depreciation less Owner-operator and Unpaid Family Labour.* Boat Business Profit represents a more complete picture of the actual financial status of an individual firm, compared with GOS, which represents the cash in-cash out situation only.

Profit at Full Equity: is calculated as *Boat Business Profit plus rent, interest and lease payments.* Profit at Full Equity represents the profitability of an individual licence holder, assuming the licence holder has full equity in the operation, i.e. there is no outstanding associated with the investment in boat capital. Profit at Full Equity is a useful absolute measure of the economic performance of fishing firms.

Rate of Return to Capital: is calculated as *Profit at Full Equity divided by Boat Capital multiplied by 100.* This measure is expressed in percentage terms and is calculated for an individual licence holder. It refers to the economic return to the total investment in capital items, and is a useful relative measure of the performance of individual firms. Rate of return to capital is useful to compare the performance of various licence holders, and to compare the performance of other types of operators, and with other industries.

Gross value of production (GVP): refers to the value of the total annual catch for individual fisheries, fishing sectors or the fishing industry as a whole, and is measured in dollar terms. GVP, generally reported on an annual basis, is the quantity of catch for the year multiplied by the average monthly landed beach prices.

Beach price: refers to the price received by commercial fishers at the "port level" for their catch, and is generally expressed in terms of \$/kg. Processing costs are not included in the beach price, as processing operations are assumed to occur further along the value chain. The use of beach prices also removes the effect of transfer pricing by the firm if it is vertically integrated into the value chain.

Cost of management services: in a commercial fishery management services will generally include biological monitoring and reporting; policy, regulation and legislation

development; compliance and enforcement services; licensing services; and research. Where a commercial fishery operates under full cost recovery, licence fees will be set to cover the cost of managing the fishery or at least the commercial sector's share of the resource.

In fisheries where there is full cost recovery, it can be assumed that the cost of providing these management services to the commercial sector will be equal to the gross receipts from licence fees in the fishery. With information on licence fee receipts, GVP, catch and the number of commercial fishers in the fishery, the following indicators can be readily calculated:

- aggregate licence fee receipts for the fishery (\$)
- licence fee/GVP (%)
- licence fee/catch (\$/kg)
- licence fee/licence holder (\$/licence holder)

3. Economic Indicators for the Lakes and Coorong Fishery

3.1 Gross Value of Production and Catch

The principal information used to estimate the gross value of production (GVP) for the South Australian Lakes and Coorong Fishery is derived from the catch and effort database administered by SARDI Aquatic Sciences.

It is acknowledged that SARDI's estimates of the GVP of fish harvested from the Lakes and Coorong Fishery are underestimated because average values are based on wholesale prices received at the Adelaide market. Baker and Pierce (1998) believed this to be an unrealistic premise. They suggested that a significant proportion of some of the more financially important species are marketed either at the Sydney and Melbourne markets or locally, where prices received are considerably higher than can be obtained at the Adelaide market. Licence holders participating in the surveys in 2003 and 2006 confirmed that fish are marketed at a wide variety of locations, including the Sydney and Melbourne fish markets.

Baker and Pierce (1998) re-assessed 1996/97 SARDI catch data using prices from local and interstate markets, as well as individual estimates of local value-adding provided by the fishers to account for the higher prices received at alternative markets. For the purpose of this study, SARDI estimates of GVP for the period 1992/93 to 2001/02 have been re-valued using Baker and Pierce's (1998) method. However, as these readjustment factors were derived from 1996/97 data, SARDI estimates of GVP for 2002/03 to 2004/05 have been revised using updated readjustment factors derived from a weighted average of 2002/03 fish prices from the Adelaide, Sydney and Melbourne fish markets. The market weightings were derived from the EconSearch survey of licence holders in 2003. The SARDI estimates of GVP for 2005/06 to 2007/08 have also been revised using readjustment factors based on weighted averages of Adelaide, Sydney and Melbourne market prices. Weightings were based on the 2006 survey of licence holders.

The reported catch levels of species caught by fishers in the Lakes and Coorong Fishery for the period 1992/93 to 2007/08 are shown in Table 3.1. The total catch of fish in 2007/08 was 2,146 tonnes, slightly less than the total weight of fish caught in 1992/93. Table 3.1 and Figures 3.1 and 3.2 demonstrate that catch levels have fluctuated significantly during the fifteen-year period from 1992/93 to 2007/08.

The estimated GVP of species caught by fishers in the Lakes and Coorong Fishery for the period 1992/93 to 2007/08 is shown in Table 3.2. The estimated GVP of the fishery increased by 113 per cent in nominal terms from \$3.5 million in 1992/93 to over \$7.5 million in 2007/08. While the Lakes and Coorong Fishery's GVP over the fifteen-year period (1992/93 to 2007/08) trended upwards in nominal terms, the consumer price index for Adelaide also increased (by 51 per cent) over the same period (ABS 2008). This means that, in real terms (i.e. in 1992/93 dollars), the value of the catch in the Lakes and Coorong Fishery in 2007/08 was 41 per cent higher than in 1992/93.

Table 3.1 Reported catch of the Lakes and Coorong Fishery, 1992/93 to 2007/08 (tonnes) ^a

| | 1992/93 | 1993/94 | 1994/95 | 1995/96 | 1996/97 | 1997/98 | 1998/99 | 1999/00 | 2000/01 | 2001/02 | 2002/03 | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 |
|----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Australian Salmon | 3 | 1 | 0 | 5 | 3 | 4 | 3 | 4 | 2 | 1 | 1 | 2 | 4 | 3 | 4 | 6 |
| Black Bream | 3 | 3 | 3 | 4 | 4 | 4 | 3 | 4 | 7 | 8 | 12 | 10 | 6 | 7 | 4 | 4 |
| Bony Bream | 612 | 695 | 838 | 706 | 688 | 757 | 609 | 429 | 474 | 298 | 212 | 279 | 340 | 318 | 382 | 416 |
| Callop | 100 | 104 | 207 | 173 | 137 | 151 | 98 | 57 | 71 | 36 | 38 | 82 | 103 | 123 | 152 | 117 |
| European Carp | 673 | 842 | 816 | 767 | 767 | 635 | 444 | 269 | 274 | 210 | 404 | 579 | 567 | 737 | 697 | 713 |
| Goolwa Cockle (Pipi) | 445 | 465 | 396 | 473 | 485 | 669 | 635 | 756 | 873 | 783 | 1,086 | 1,070 | 1,066 | 1,052 | 989 | 605 |
| Flounder | 27 | 10 | 4 | 30 | 15 | 11 | 28 | 40 | 19 | 26 | 6 | 6 | 9 | 7 | 5 | 2 |
| Yellow-Eye Mullet | 210 | 181 | 239 | 195 | 161 | 158 | 139 | 150 | 127 | 155 | 167 | 111 | 110 | 126 | 141 | 216 |
| Mulloway | 34 | 85 | 78 | 57 | 56 | 50 | 95 | 69 | 136 | 109 | 45 | 31 | 39 | 38 | 44 | 32 |
| Redfin | 36 | 64 | 43 | 22 | 30 | 22 | 44 | 24 | 25 | 10 | 6 | n.a. | n.a. | n.a. | n.a. | n.a. |
| Other Species | 9 | 3 | 2 | 3 | 8 | 4 | 4 | 5 | 5 | 4 | 2 | 10 | 14 | 29 | 25 | 35 |
| Total | 2,152 | 2,453 | 2,626 | 2,435 | 2,354 | 2,465 | 2,102 | 1,807 | 2,013 | 1,640 | 1,979 | 2,180 | 2,258 | 2,440 | 2,443 | 2,146 |

^a The River Fishery was closed from July 2003. There are 6 River Fishery licences with access to non-native species and their production is included in this Table.

Source: Knight et al. (2004) and SARDI Aquatic Sciences.

Table 3.2 Gross value of production of the Lakes and Coorong Fishery, 1992/93 to 2007/08 (\$'000) ^a

| | 1992/93 | 1993/94 | 1994/95 | 1995/96 | 1996/97 | 1997/98 | 1998/99 | 1999/00 | 2000/01 | 2001/02 | 2002/03 | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 |
|---------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Australian Salmon | 3 | 1 | 0 | 6 | 4 | 5 | 4 | 5 | 2 | 1 | 1 | 3 | 5 | 4 | 6 | 10 |
| Black Bream | 17 | 21 | 25 | 33 | 34 | 42 | 30 | 37 | 58 | 70 | 110 | 100 | 55 | 69 | 51 | 41 |
| Bony Bream | 479 | 497 | 694 | 566 | 553 | 661 | 542 | 479 | 512 | 564 | 227 | 234 | 286 | 318 | 382 | 416 |
| Callop | 571 | 644 | 1,738 | 1,640 | 1,638 | 1,691 | 1,190 | 851 | 892 | 271 | 583 | 1,176 | 1,464 | 1,094 | 2,297 | 2,055 |
| European Carp | 653 | 720 | 991 | 667 | 662 | 590 | 650 | 562 | 502 | 463 | 748 | 1,030 | 960 | 952 | 884 | 1,141 |
| Goolwa Cockle (Pipi) | 752 | 672 | 572 | 692 | 647 | 712 | 1,098 | 1,096 | 1,710 | 1,315 | 2,013 | 2,305 | 2,092 | 2,757 | 2,662 | 2,807 |
| Flounder | 106 | 45 | 18 | 137 | 74 | 62 | 132 | 219 | 113 | 183 | 53 | 49 | 78 | 62 | 51 | 20 |
| Yellow-Eye Mullet | 599 | 592 | 715 | 638 | 612 | 544 | 581 | 773 | 704 | 795 | 392 | 257 | 245 | 310 | 401 | 621 |
| Mulloway | 182 | 444 | 455 | 328 | 310 | 303 | 570 | 482 | 824 | 736 | 306 | 192 | 256 | 231 | 286 | 239 |
| Redfin | 178 | 290 | 259 | 154 | 200 | 137 | 295 | 166 | 193 | 80 | 25 | n.a. | n.a. | n.a. | n.a. | n.a. |
| Other Species | 9 | 5 | 4 | 4 | 13 | 9 | 13 | 18 | 14 | 24 | 7 | 35 | 54 | 127 | 123 | 194 |
| Total (Nominal) | 3,548 | 3,930 | 5,471 | 4,865 | 4,747 | 4,756 | 5,107 | 4,689 | 5,525 | 4,502 | 4,466 | 5,382 | 5,495 | 5,924 | 7,143 | 7,544 |
| Total (Real) ^b | 3,548 | 3,854 | 5,204 | 4,463 | 4,316 | 4,349 | 4,609 | 4,128 | 4,602 | 3,649 | 3,480 | 4,071 | 4,063 | 4,180 | 4,955 | 5,005 |

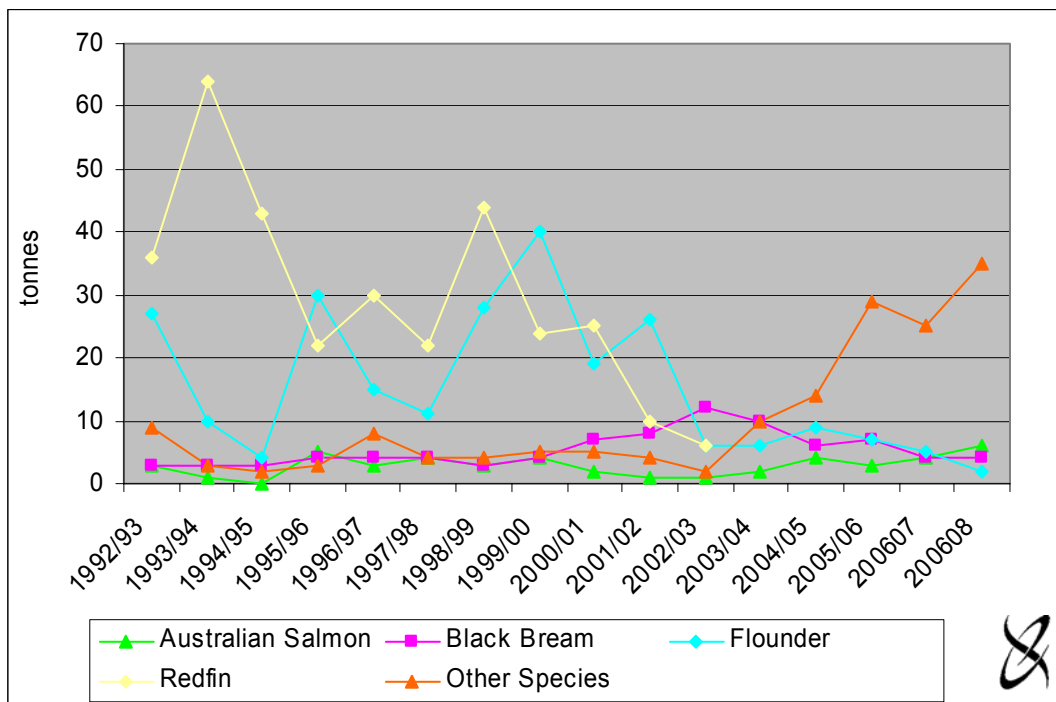
^a GVP estimates for 1992/93 to 2001/02 are based on re-estimated SARDI values using readjustment factors outlined in Baker and Pierce (1998). As these readjustment factors were derived from 1996/97 data, SARDI's GVP estimates for 2002/03 to 2004/05 have been revised using updated readjustment factors derived from a weighted average of 2002/03 fish prices from the Adelaide, Sydney and Melbourne fish markets. The market weightings were derived from the 2003 EconSearch survey of licence holders. SARDI's estimates of GVP for 2006/07 and 2007/08 have been revised based on updated readjustments factors derived from Adelaide, Melbourne and Sydney market prices and market weightings from the 2006 licence holder survey. Information provided by licence holders in the 2006 survey suggests that re-valued estimates of GVP for some species may have been overstated in previous years.

^b In 1992/93 dollars.

Source: Knight et al. (2004), Baker and Pierce (1998), SARDI Aquatic Sciences and EconSearch analysis

The catch of lower volume species in the fishery over the period 1992/93 to 2007/08 is shown in Figure 3.1. Catch levels of flounder and redfin have fluctuated significantly from year to year. A long-term decline in the quantity of redfin caught is evident. Very small quantities of flounder, black bream and Australian salmon were caught in 2007/08, relative to other species.

Figure 3.1 Catch of lower volume species, Lakes and Coorong Fishery, 1992/93 to 2007/08 ^a



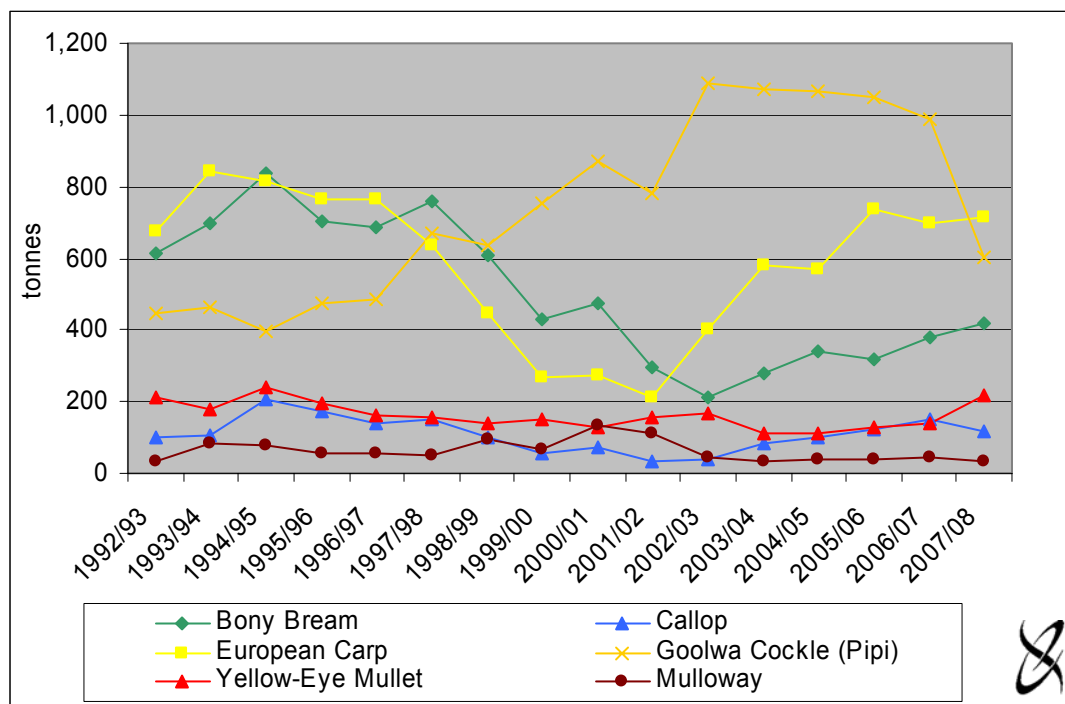
^a Note that Redfin catch was not published separately in 2003/04 to 2006/07 and has been included in the 'other species' category.

Source: Knight et al. (2004) and SARDI Aquatic Sciences.

Figure 3.2 outlines the catch of higher volume species over the period 1992/93 to 2007/08. Notable trends include the significant increase in the quantity of Pipsis harvested between 1992/93 and 2002/03 and a decline in cockle catch in subsequent years. There was a significant decline in the reported catch of Bony Bream and European Carp between 1992/93 and 2002/03 with catch levels increasing in subsequent years.³ Yellow-Eye Mullet catch decreased significantly between 1994/95 and 2004/05 but increased steadily in the following three years.

³ Survey respondents indicated that considerable quantities of European carp and bony bream caught cannot be sold and are thus discarded. As licence holders generally do not record these discarded fish in their monthly log book returns, SARDI catch estimates for these species, as reported in Table 3.1 and Figure 3.2, may be underestimated.

Figure 3.2 Catch of higher volume species, Lakes and Coorong Fishery, 1992/93 to 2007/08



Source: Knight et al. (2004) and SARDI Aquatic Sciences.

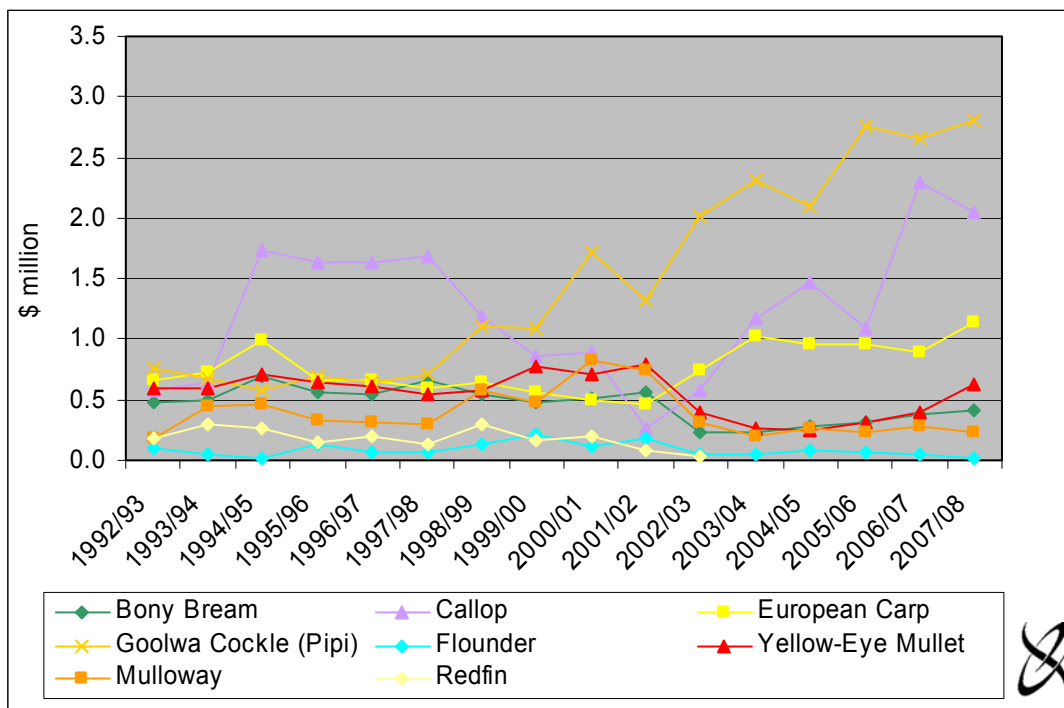
Figure 3.3 outlines the gross value of production of the most significant species over the period 1992/93 to 2007/08. As with catch, GVP by species has fluctuated significantly⁴.

Figure 3.4 outlines the total catch and value of all species taken by licence holders in the Lakes and Coorong Fishery over the period 1992/93 to 2007/08. These data, together with the information shown in Table 3.1, are interesting as they demonstrate the high level of variability of catch for individual species and total catch over time. Figure 3.4 also shows that aggregate income has remained relatively steady over that time, which suggests that effort is switched from financially unviable species to more lucrative species in response to changing market and environmental conditions.

In recent years, GVP has increased steadily from approximately \$4.5 million in 2002/03 to \$7.5 million in 2007/08 (in nominal terms). This has been the result of an increase in both catch and price over the period. Even in real terms (prices adjusted for inflation), GVP has increased by almost 44 per cent over that 5-year period.

⁴ Factors other than abundance, such as annual variations in 'catchability', effort targeting and market conditions (especially supply of competitive product) can also influence the variability shown in Figures 3.3 and 3.4.

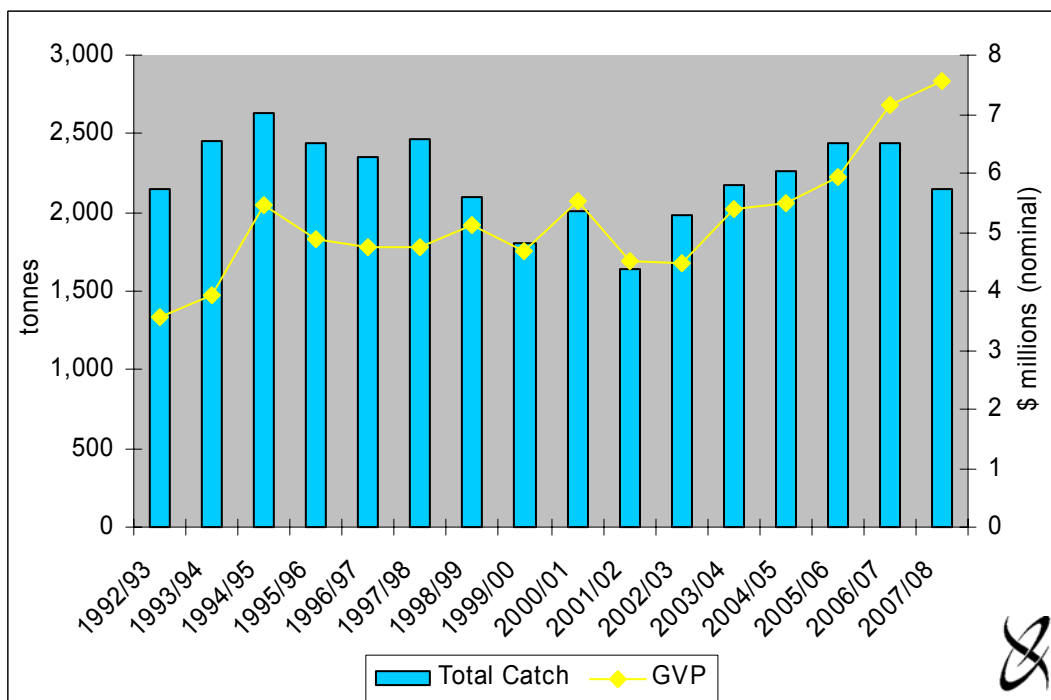
Figure 3.3 Gross value of production of major species, Lakes and Coorong Fishery, 1992/93 to 2007/08 ^a



^a Note that Redfin value of production was not published separately in 2003/04 to 2007/08 and has been included in the other species category (Figure 3.2).

Source: Knight et al. (2004), Baker and Pierce (1998), SARDI Aquatic Sciences and EconSearch analysis.

Figure 3.4 Total catch and gross value of production, Lakes and Coorong Fishery, 1992/93 to 2007/08



Source: Knight et al. (2004), Baker and Pierce (1998) SARDI Aquatic Sciences and EconSearch analysis.

3.2 Cost of Management

South Australian commercial fisheries operate under full cost recovery. Accordingly, licence fees are set to cover the cost of managing the fishery. Management services include:

- annual reports on biological and economic indicators;
- policy and management services;
- regulatory/legislation and licensing services;
- compliance services;
- directorate services;
- extension services; and
- research services, including the Fisheries Research and Development Corporation (FRDC) levy.

For the purpose of this analysis, the cost of providing management services has been assumed to be equal to the gross receipts from licence fees in the fishery.

Table 3.3 shows the cost of management for the fishery for the period 1996/97 to 2008/09.

The following can be observed for the fishery for the period 1996/97 to 2007/08.

- Actual licence fee receipts increased 121 per cent from approximately \$136,000 in 1996/97 to just over \$299,000 in 2006/07. Total licence fees were \$282,000 in 2007/08, a decrease of 6 per cent compared to the previous year.
- Licence fees as a percentage of GVP increased from 2.9 per cent in 1996/97 to 4.5 per cent in 2005/06, reflecting a significant increase in licence fees and an increase in GVP. Licence fees as a proportion of GVP have decreased slightly in the last two years and were 3.7 per cent in 2007/08.
- The management cost per kilogram of catch increased from \$0.06/kg in 1996/97 to \$0.13/kg in 2007/08, reflecting an increase in licence fees and despite an increase in catch.
- The average management cost per licence holder increased from \$3,478 in 1996/97 to \$8,094 in 2006/07, reflecting a decrease in the number of licence holders (from 39 to 37) and an increase in total management costs⁵. Average cost per licence holder was \$7,614 in 2007/08, a decrease of 6 per cent compared to the previous year.

Average fee per licence holder increased by approximately 59 per cent between 2007/08 and 2008/09, from \$7,614 to \$12,144, as a result of increased management requirements for the Pipi fishery.

In 2007/08 the Lakes and Coorong Fishery licence fees were comprised of a base fee of \$6,591, a Pipi SASQAP fee of \$652 (applicable to 29 licences) and a marine scale net fee of \$1,834 (applicable to 20 licence holders).

In 2008/09 the Lakes and Coorong Fishery licence fees were comprised of a base fee of \$3,135 (applicable to 36 licences), a marine scale net fee of \$1,782 (applicable to 19

⁵ Note that the average management cost per licence holder excludes the \$40,000 in drought relief funds received in 2003/04 and 2004/05. If this was included, the average management cost per licence holder would have been \$6,396 in 2003/04 and \$7,643 in 2004/05.

licences), a Goolwa Cockle base fee of \$3,892 (applicable to 29 licences) and a Pipi unit fee of \$178 per unit (applicable to 32 quota holders).

Table 3.3 Cost of management in the Lakes and Coorong Fishery, 1996/97 to 2008/09 ^a

| | Licence Fees ^b | Gross Value of Production | Fees/GVP | Catch | Fees/Catch | Licence Holders | Average Fees/Licence Holder |
|----------------------|---------------------------|---------------------------|----------|----------|------------|-----------------|-----------------------------|
| | (\$'000) | (\$'000) | (%) | ('000kg) | (\$/kg) | (no.) | (\$/licence) |
| 1996/97 | 136 | 4,747 | 2.9% | 2,354 | \$0.06 | 39 | \$3,478 |
| 1997/98 | 171 | 4,756 | 3.6% | 2,465 | \$0.07 | 39 | \$4,395 |
| 1998/99 | 150 | 5,107 | 2.9% | 2,102 | \$0.07 | 38 | \$3,940 |
| 1999/00 | 173 | 4,689 | 3.7% | 1,807 | \$0.10 | 38 | \$4,549 |
| 2000/01 | 179 | 5,525 | 3.2% | 2,013 | \$0.09 | 38 | \$4,698 |
| 2001/02 | 175 | 4,502 | 3.9% | 1,640 | \$0.11 | 38 | \$4,595 |
| 2002/03 | 185 | 4,466 | 4.1% | 1,979 | \$0.09 | 37 | \$5,001 |
| 2003/04 ^c | 197 | 5,382 | 3.7% | 2,180 | \$0.09 | 37 | \$5,315 |
| 2004/05 ^c | 243 | 5,495 | 4.4% | 2,258 | \$0.11 | 37 | \$6,562 |
| 2005/06 ^c | 265 | 5,924 | 4.5% | 2,440 | \$0.11 | 37 | \$7,175 |
| 2006/07 ^c | 299 | 7,143 | 4.2% | 2,443 | \$0.12 | 37 | \$8,094 |
| 2007/08 | 282 | 7,544 | 3.7% | 2,146 | \$0.13 | 37 | \$7,614 |
| 2008/09 | 437 | n.a. | - | n.a. | - | 36 | \$12,144 |

^a In addition to licence fees collected, \$40,000 in drought relief funds were received in both 2003/04 and 2004/05 from the SA Government to assist in the management of the fishery (Alice Fistr PIRSA, pers comm.).

^b Comprised of base licence fees (\$244,972 in 2007/08) and marine scale net fee (\$36,761 in 2007/08).

^c Includes South Australian Shellfish Quality Assurance Program (SASQAP) fee incurred by licence holders with access to Papis.

Source: PIRSA Fisheries, SARDI Aquatic Sciences.

In 2007/08 all licence holders with access to Papis were no longer required to pay the SASQAP fee. Fishers who catch Papis for human consumption now must be accredited under the Seafood Food Safety Scheme. Currently there are 9 businesses accredited under the scheme, covering 13 fishing licences. To obtain and maintain accreditation each fisher must comply with certain requirements relating to the harvest and handling of Papis. Each fisher must also pay an application fee and an annual fee to maintain accreditation. The fees associated with the food safety scheme are detailed in Table 3.4.

Table 3.4 Food safety schemes accreditation fees, 2007/08

| Description | Fee (\$) |
|--|----------|
| Application for accreditation or for approval of a food safety arrangement other than in conjunction with an application for accreditation | \$380 |
| Annual Fee | |
| - per business | \$163 |
| - per licence | \$1,620 |

Source: *Primary Produce (Food Safety Schemes) (Seafood) Regulations 2006*.

3.3 Summary of Factors Affecting Costs

The information outlined in Table 3.5 was used to adjust the 2006/07 financial indicators to reflect the costs incurred in the fishery in 2007/08.

Table 3.5 Factors affecting costs in the Lakes and Coorong fishery, 2006/07 and 2007/08

| | 2006/07 | 2007/08 | Change |
|---|---------|---------|--------|
| Total days fished ^a | 7,886 | 7,512 | -4.7% |
| Price of fuel - Transportation Index ^b | 160.9 | 168.6 | 4.8% |
| Interest charges (%/annum) ^c | 8.8% | 9.9% | 12.5% |
| Labour price index ^d | 111.6 | 116.9 | 4.7% |
| CPI Adelaide ^e | 160.3 | 167.6 | 4.6% |

^a Source: SARDI Aquatic Sciences (Angelo Tsolos pers. comm.).

^b ABS transportation index for Adelaide (ABS 2008).

^c RBA indicator lending rate for small business (RBA 2008).

^d ABS labour price index for SA (ABS 2009).

^e Consumer price index for Adelaide (ABS 2008).

- Information from SARDI on the change in fishing effort (total days fished) was used to adjust costs that vary depending on the amount of time spent fishing. These costs include the cost of fuel, repairs and maintenance, bait and provisions.
- The ABS transportation index for Adelaide was used to adjust the cost of fuel.⁶
- Interest charges were adjusted in accordance with the Reserve Bank of Australia (RBA) indicator lending rate (i.e. weighted average interest rate for small businesses with outstanding credit).
- The ABS labour price index for SA was used to adjust the cost of labour.
- The CPI for Adelaide was used to adjust other costs incurred in the fishery. Other costs include, legal and accounting costs, office and administration, telephone expenses and other incidental costs.

⁶ The transportation index provides an indication of the change in the cost of fuel between years rather than the actual price of fuel.

3.4 Financial Performance Indicators

The major measures of the financial performance of licence holders in the Lakes and Coorong Fishery for the period 2005/06 to 2007/08 are shown in Table 3.6. Estimates of financial performance for 2002/03 to 2004/05 were derived from the 2003 survey of licence holders and are detailed in Appendix 2. Financial performance estimates for 2005/06 to 2007/08 were based on a second licence holder survey conducted in 2006.

Income...

The average gross income per licence in the Lakes and Coorong Fishery in 2007/08 was approximately \$228,000 (Table 3.6), 5 per cent higher than 2006/07, reflecting an increase in the GVP for the fishery.

Costs...

Table 3.6 shows total boat costs separated into variable and fixed costs. Variable costs (76 per cent of total boat cash costs in 2007/08) represented a significantly greater proportion of total boat cash costs than fixed costs (24 per cent).

It was estimated that average total boat cash costs increased by approximately 1 per cent between 2006/07 and 2007/08. This increase comprised of a minimal change in variable costs (e.g. fuel and ice), a 6 per cent decrease in licence fees and a 13 per cent increase in interest costs (Table 3.6).

In 2007/08 approximately 54 per cent of total cash costs were attributable to fixed and variable labour costs (approximately \$80,000 including unpaid labour), by far the biggest cost item. The labour costs reported in Table 3.6 are comprised of payments to licence owners and crew as well as an imputed wage to those licence owners and other family members who are not paid a wage directly by the business. Imputed unpaid labour (\$48,000 per licence for 2007/08) was divided into variable (fishing and repairs and maintenance) and fixed (management and administration) components based on the 2006 licence holder survey.

Other significant cash costs were fuel (10 per cent of total boat cash costs), licence fees (6 per cent), repairs and maintenance (5 per cent) and interest (4 per cent).

Cash Income and Profit...

The separation of variable and fixed costs from total cash costs enables the calculation of boat gross margin (total boat income less total boat variable costs) as a basic measure of profit (assuming that capital has no alternative use and that as fishing activity varies there is no change in capital or fixed costs). There was a large increase in boat gross margin in 2007/08 (\$115,200) compared to previous years mainly due to the significant increase in boat gross income in 2007/08.

Gross operating surplus (GOS) was calculated excluding imputed wages for operator and family members. The average GOS of all boats in 2007/08 was estimated to be \$128,571, 9 per cent higher than 2006/07 (Table 3.6).

Table 3.6 Financial performance in the Lakes and Coorong Fishery, 2005/06 to 2007/08 (average per licence)

| | 2005/06 | | 2006/07 | | 2007/08 | |
|---|---------------------|----------------------------|---------------------|----------------------------|---------------------|----------------------------|
| | Average per Licence | Share of TBCC ^a | Average per Licence | Share of TBCC ^a | Average per Licence | Share of TBCC ^a |
| (1) Total Boat Gross Income | \$192,547 | | \$216,341 | | \$228,485 | |
| Variable Costs | | | | | | |
| Fuel | \$13,949 | 10% | \$14,811 | 10% | \$14,779 | 10% |
| Repairs & Maintenance ^b | \$6,382 | 5% | \$6,801 | 5% | \$6,773 | 5% |
| Bait/Ice | \$1,304 | 1% | \$1,390 | 1% | \$1,384 | 1% |
| Provisions | \$231 | 0% | \$246 | 0% | \$245 | 0% |
| Labour - paid | \$30,518 | 22% | \$33,225 | 22% | \$33,152 | 22% |
| (2) - unpaid ^c | \$38,425 | 28% | \$41,833 | 28% | \$41,742 | 28% |
| Other | \$15,920 | 11% | \$16,193 | 11% | \$16,930 | 11% |
| (3) Total Variable Costs | \$106,728 | 77% | \$114,499 | 77% | \$115,006 | 77% |
| Fixed Costs | | | | | | |
| Licence Fee ^d | \$8,660 | 6% | \$9,770 | 7% | \$9,191 | 6% |
| Insurance | \$1,593 | 1% | \$1,620 | 1% | \$1,694 | 1% |
| (4) Interest | \$4,900 | 4% | \$5,258 | 4% | \$5,915 | 4% |
| (5) Labour - unpaid ^c | \$6,740 | 5% | \$7,004 | 5% | \$7,336 | 5% |
| Legal & Accounting | \$1,936 | 1% | \$1,969 | 1% | \$2,059 | 1% |
| Telephone etc. | \$2,194 | 2% | \$2,232 | 2% | \$2,333 | 2% |
| Slipping & Mooring | \$63 | 0% | \$64 | 0% | \$66 | 0% |
| Travel | \$942 | 1% | \$958 | 1% | \$1,001 | 1% |
| Office & Admin | \$4,844 | 3% | \$4,927 | 3% | \$5,151 | 3% |
| (6) Total Fixed Costs | \$31,871 | 23% | \$33,800 | 23% | \$34,747 | 23% |
| (7) Total Boat Cash Costs (3 + 6) | \$138,599 | 100% | \$148,299 | 100% | \$149,753 | 100% |
| Boat Gross Margin (1 - 3) | \$85,819 | | \$101,842 | | \$113,479 | |
| (8) Total Unpaid Labour (2 + 5) | \$45,165 | | \$48,837 | | \$49,078 | |
| Gross Operating Surplus (1 - 7 + 8) | \$99,113 | | \$116,879 | | \$127,810 | |
| (9) Boat Cash Income (1 - 7) | \$53,948 | | \$68,042 | | \$78,731 | |
| (10) Depreciation | \$18,084 | | \$21,962 | | \$24,811 | |
| (11) Boat Business Profit (9 - 10) | \$35,864 | | \$46,079 | | \$53,920 | |
| (12) Profit at Full Equity (11 + 4) | \$40,764 | | \$51,338 | | \$59,835 | |
| Boat Capital | | | | | | |
| (13) Fishing Gear & Equip | \$121,908 | | \$148,056 | | \$167,262 | |
| Licence Value | \$177,500 | | \$214,026 | | \$226,040 | |
| (14) Total Boat Capital | \$299,408 | | \$362,082 | | \$393,303 | |
| Rate of Return on Fishing Gear & Equip (12 / 12 * 100) | 33.4% | | 34.7% | | 35.8% | |
| Rate of Return on Total Boat Capital (12 / 14 * 100) | 13.6% | | 14.2% | | 15.2% | |

^a Total boat cash costs.

^b Repairs and maintenance costs have been classified as a variable cost although it is noted that some of these costs may be fixed (e.g. regulated maintenance).

^c Unpaid labour was divided between variable (time spent fishing and on repairs and maintenance) and fixed (management and administrative duties) based on the 2006 survey responses.

^d Licence fees reported for 2005/06 to 2007/08 have been calculated based on the cost indicated by licence holders in the 2006 survey responses and changes in average fees per licence holder (Table 3.4).

Source: Licence holder survey and EconSearch analysis.

Boat cash income is measured as gross operating surplus with imputed wages (unpaid labour) included as cash costs. The estimated average boat cash income in 2007/08 is \$80,452 per boat.

Gross operating surplus and boat business profit give an indication of the capacity of the operator to remain in the fishery in the short to medium term. In 2007/08, the average boat business profit was almost \$56,000.

Profit at full equity is a measure of the profitability of an individual licence holder, assuming the licence holder has full equity in the operation. It is a useful absolute measure of the economic performance of fishing firms. Profit at full equity in 2007/08 (\$61,556) was significantly greater than the previous year (\$52,925), an increase of around 15 per cent.

Return on Investment...

For the purpose of this analysis, 'investment' is considered to be the capital employed by a licence holder in the fishery. Capital includes boats, licence, fishing gear, sheds, vehicles and other capital items used as part of the fishing enterprise. It does not include working capital or capital associated with other businesses operated by the licence holder.

The average total investment in fishing gear and licence in the Lakes and Coorong Fishery in 2007/08 was estimated to be approximately \$393,000 per fisher. This included the licence holder's estimate of the value of their licence⁷ (\$226,000) and estimated investment in boats and fishing gear (approximately \$167,000 per licence).

Licence holders indicated that, due to the inherent variability in the fishery, little money is spent on boats and gear in difficult years, as fishers try to keep costs to a minimum. In more profitable years, however, investment in boats and gear increases, with surplus supplies being purchased and stored for use in years when fishing incomes decline.

Qualitative information from the 2006 survey indicated that investment in boats and fishing equipment had been relatively low in recent years (and hence a relatively low level of depreciation – Table 3.6). It is estimated, based on historical data on the number of new boats purchased, that the value of fishing gear and equipment per licence holder increased slightly in 2007/08.

For the Lakes and Coorong Fishery as a whole, the average rate of return to fishing gear and equipment was estimated to be 36.8 per cent in 2007/08. Rate of return to total capital (gear and licence) was estimated to be 15.7 per cent⁸. The slight increase in the rates of return can be attributed to the increase in earnings in the fishery being greater than the rate of increase in the value of capital⁹.

⁷ Estimates of the 2005/06 to 2007/08 licence value reflect licence holders estimates of the value of their licence in the 2006 survey updated for changes in the gross value of the fishery. As there have been a limited number of licences traded in recent years it is difficult to estimate the actual market value of a fishing licence.

⁸ These estimates, as with those made elsewhere in this report, are sensitive to the accuracy of survey responses and assumptions made in calculating depreciation and labour costs.

⁹ As the number of new boats registered in the fishery was not available for 2006/07 or 2007/08, change in the value of fishing gear and equipment in those years has been estimated based on the average number of boats purchased by licence holders over the previous 5 years.

The question of what is a 'reasonable' average rate of return should be considered in light of the riskiness of the industry. Operating a fishing business is a relatively high-risk activity, with some of the major risks arising from market uncertainty (price risk), seasonal variability (environmental risk) and uncertainty regarding long-term resource security (institutional risk).

3.5 State and Regional Economic Impact

Estimates of the economic impact of the Lakes and Coorong fishing industry on the South Australian and regional (Murraylands¹⁰) economies in 2007/08 are outlined below.

3.5.1 Measuring direct and flow-on effects

Estimates of the direct economic impact of the Lakes and Coorong Fishery are consistent with the method employed in PIRSA's *Food for the Future* value-chain analysis, 2005/06¹¹.

The following stages in the marketing chain have, therefore, been included in the quantifiable economic impact:

- the landed beach value of production; and
- downstream impacts, including the:
 - net value of local (state and regional) processing;
 - value of local transport services at all stages of the marketing chain; and
 - net value of local retail and food service (e.g. hotels & restaurants) trade.

Each of these activities generates flow-on effects to other sectors through purchases of inputs and the employment of labour. These flow-on effects have been estimated using input-output analysis. Input-output analysis is widely used in economic impact analysis and is a practical method for measuring economic impacts at regional and state levels.

Economic impacts at the state and regional levels were based on models for the state as a whole and for the Murraylands region, respectively, prepared for the Regional Communities Consultative Council, Local Government Association of South Australia and Regional Development SA (EconSearch 2005b).

In order to compile a representative cost structure for the fishing sector, costs per boat were derived from data provided by operators in the fishery in the financial survey for 2005/06, described earlier. On an item-by-item basis, the expenditures were allocated between those occurring in the Murraylands region, those occurring in South Australia and those goods and services imported from outside the state.

Estimates of the net value of local (i.e. regional and state) processing margins and retail and food service trade margins were derived from PIRSA's *Food for the Future* value-chain analysis (*Seafood Scorecard, 2004/05*) (Jack Langberg, PIRSA, pers. comm.). Estimates of the net value of local transport margins and capital expenditure per licence holder were derived from the 2006 survey of licence holders.

¹⁰ The Murraylands is comprised of the statistical division of the Murraylands, as defined by the ABS.

¹¹ The relevant information was obtained from Jack Langberg (PIRSA, pers. comm.).

Economic impacts have been specified in terms of the following economic indicators:

- value of output;
- employment;
- household income; and
- contribution to gross state or regional product.

Value of output is a measure of the gross revenue of goods and services produced by commercial organisations plus gross expenditure by government agencies. This indicator needs to be used with care as it includes elements of double counting.

Employment is a measure of the number of working proprietors, managers, directors and other employees, in terms of the number of full-time equivalent (fte) jobs.

Household income is a component of Gross State Product (GSP) and Gross Regional Product (GRP) and is a measure of wages and salaries, drawings by owner operators and other payments to labour including overtime payments and income tax, but excluding payroll tax.

Contribution to GSP or GRP is a measure of the net contribution of an activity to the state/regional economy. Contribution to GSP or GRP is measured as value of output less the cost of goods and services (including imports) used in producing the output. It can also be measured as household income plus other value added (gross operating surplus and all taxes, less subsidies). It represents payments to the primary inputs of production (labour, capital and land). Using contribution to GSP or GRP as a measure of economic impact avoids the problem of double counting that may arise from using value of output for this purpose.

3.5.2 Economic impacts at the state and regional levels

Estimates of the economic impact generated in 2007/08 by the Lakes and Coorong fishing industry in South Australia and the Murraylands region are outlined in Tables 3.7 and 3.8, respectively.

For each measure of economic activity, the impacts at the state level are greater than regional level impacts. This is to be expected, as the regional impact is simply a component, albeit a significant one, of the total state impact.

The direct impact measures fishing and downstream activities (i.e. processing, transport, retail/food services and capital expenditure). The flow-on impact measures the economic effects in other sectors of the economy (trade, manufacturing, etc.) generated by the fishing industry activities, that is, the multiplier effects.

Table 3.7 The economic impact of the Lakes and Coorong fishing industry in South Australia, 2007/08

| Sector | Output | | Employment ^a | | Household Income | | Contribution to GSP | |
|-----------------------------------|-------------|---------------|-------------------------|---------------|------------------|---------------|---------------------|---------------|
| | (\$m) | % | (fte jobs) | % | (\$m) | % | (\$m) | % |
| Direct effects | | | | | | | | |
| Fishing | 7.5 | 28.1% | 74 | 39.4% | 3.0 | 36.0% | 5.2 | 37.1% |
| Processing | 1.3 | 4.7% | 4 | 2.0% | 0.2 | 2.2% | 0.3 | 2.1% |
| Transport | 1.1 | 4.0% | 5 | 2.5% | 0.3 | 4.2% | 0.5 | 3.6% |
| Retail | 1.3 | 4.9% | 18 | 9.8% | 0.6 | 6.7% | 0.7 | 4.7% |
| Food services | 1.4 | 5.0% | 11 | 5.8% | 0.3 | 4.2% | 0.5 | 3.8% |
| Capital expenditure ^b | 0.4 | 1.3% | 2 | 1.3% | 0.1 | 1.1% | 0.1 | 0.9% |
| Total Direct ^c | 12.9 | 46.8% | 114 | 59.5% | 4.5 | 53.3% | 7.3 | 51.3% |
| Flow-on effects | | | | | | | | |
| Trade | 2.2 | 8.3% | 23 | 12.3% | 0.8 | 10.0% | 1.0 | 7.4% |
| Manufacturing | 2.8 | 10.6% | 8 | 4.5% | 0.4 | 5.0% | 0.7 | 4.7% |
| Business Services | 1.8 | 6.7% | 10 | 5.3% | 0.7 | 7.9% | 0.9 | 6.1% |
| Transport | 0.7 | 2.4% | 3 | 1.5% | 0.2 | 2.6% | 0.3 | 2.2% |
| Other Sectors | 6.4 | 24.0% | 29 | 15.5% | 1.7 | 20.0% | 3.9 | 27.4% |
| Total Flow-on ^c | 13.9 | 51.9% | 73 | 39.2% | 3.8 | 45.6% | 6.7 | 47.8% |
| Total ^c | 26.9 | 100.0% | 187 | 100.0% | 8.3 | 100.0% | 14.1 | 100.0% |
| Total/Direct | 2.1 | - | 1.6 | - | 1.8 | - | 1.9 | - |
| Total/Tonne | \$12,500 | - | 0.09 | - | \$3,800 | - | \$6,558 | - |

^a Full-time equivalent jobs. Direct employment in the fishing industry was comprised of 52 full-time jobs and 51 part-time jobs, that is, 103 jobs in aggregate.

^b Capital expenditure includes expenditure on boats, fishing gear and equipment, sheds and buildings, motor vehicles and other equipment.

^c Totals may not sum due to rounding.

Source: EconSearch analysis.

Value of output...

The value of output generated directly in South Australia and the Murraylands region by Lakes and Coorong fishing enterprises summed to \$7.5 million in 2007/08 (Tables 3.7 and 3.8), while output generated in South Australia by associated downstream activities (processing, transport, retail/food services and capital expenditure) summed to \$5.4 million (\$1.6 million in the Murraylands region, Table 3.8).

Flow-ons to other sectors of the state economy added another \$13.9 million in output (\$5.2 million in the regional economy). The sectors most affected were the manufacturing, trade, business services and transport sectors.

Table 3.8 The economic impact of the Lakes and Coorong fishing industry in the Murraylands region, 2007/08

| Sector | Output | | Employment ^a | | Household Income | | Contribution to GRP | |
|-----------------------------------|-------------|---------------|-------------------------|---------------|------------------|---------------|---------------------|---------------|
| | (\$m) | % | (fte jobs) | % | (\$m) | % | (\$m) | % |
| Direct effects | | | | | | | | |
| Fishing | 7.5 | 53.2% | 74 | 62.0% | 3.0 | 62.4% | 5.2 | 61.6% |
| Processing | 0.6 | 4.5% | 2 | 1.6% | 0.1 | 1.7% | 0.2 | 2.0% |
| Transport | 0.5 | 3.8% | 3 | 2.8% | 0.2 | 3.9% | 0.3 | 3.0% |
| Retail | 0.0 | 0.3% | 1 | 0.5% | 0.0 | 0.3% | 0.0 | 0.2% |
| Food services | 0.0 | 0.3% | 0 | 0.3% | 0.0 | 0.2% | 0.0 | 0.2% |
| Capital expenditure ^b | 0.2 | 1.3% | 2 | 2.0% | 0.1 | 1.5% | 0.1 | 1.1% |
| Total Direct ^c | 9.0 | 62.0% | 82 | 67.2% | 3.3 | 68.6% | 5.8 | 67.1% |
| Flow-on effects | | | | | | | | |
| Trade | 1.2 | 8.5% | 15 | 13.0% | 0.5 | 9.5% | 0.6 | 6.8% |
| Manufacturing | 0.6 | 4.5% | 2 | 1.6% | 0.1 | 1.7% | 0.2 | 2.0% |
| Business Services | 0.4 | 3.1% | 3 | 2.3% | 0.1 | 3.1% | 0.2 | 2.5% |
| Transport | 0.2 | 1.3% | 1 | 1.0% | 0.1 | 1.4% | 0.1 | 1.1% |
| Other Sectors | 2.7 | 19.3% | 16 | 13.0% | 0.7 | 14.2% | 1.7 | 19.6% |
| Total Flow-on ^c | 5.2 | 36.7% | 37 | 30.8% | 1.4 | 29.9% | 2.7 | 31.9% |
| Total ^c | 14.2 | 100.0% | 119 | 100.0% | 4.8 | 100.0% | 8.5 | 100.0% |
| Total/Direct | 1.6 | - | 1.4 | - | 1.4 | - | 1.5 | - |
| Total/Tonne | \$6,600 | - | 0.06 | - | \$2,200 | - | \$3,900 | - |

^a Full-time equivalent jobs. Direct employment in the fishing industry was comprised of 52 full-time jobs and 50 part-time jobs, that is, 103 jobs in aggregate.

^b Capital expenditure includes expenditure on boats, fishing gear and equipment, sheds and buildings, motor vehicles and other equipment.

^c Totals may not sum due to rounding.

Source: EconSearch analysis.

Employment and household income...

In 2006/07, the Lakes and Coorong Fishery was responsible for direct employment of around 74 full-time equivalents and downstream activities created employment of around 40 fte jobs state-wide. Flow-on business activity was estimated to generate a further 73 fte jobs state-wide (37 jobs regionally). These state-wide jobs were concentrated in the trade (23), business services (10) and manufacturing (8) sectors.

Personal income of \$3.0 million was earned in the fishing sector (wages of employees and estimated drawings by owner/operators) and \$1.5 million in downstream activities in SA. An additional \$3.8 million was earned by wage earners in other businesses in the state as a result of fishing and associated downstream activities. The total household income impact was \$8.3 million in SA (\$4.8 million in the Murraylands region).

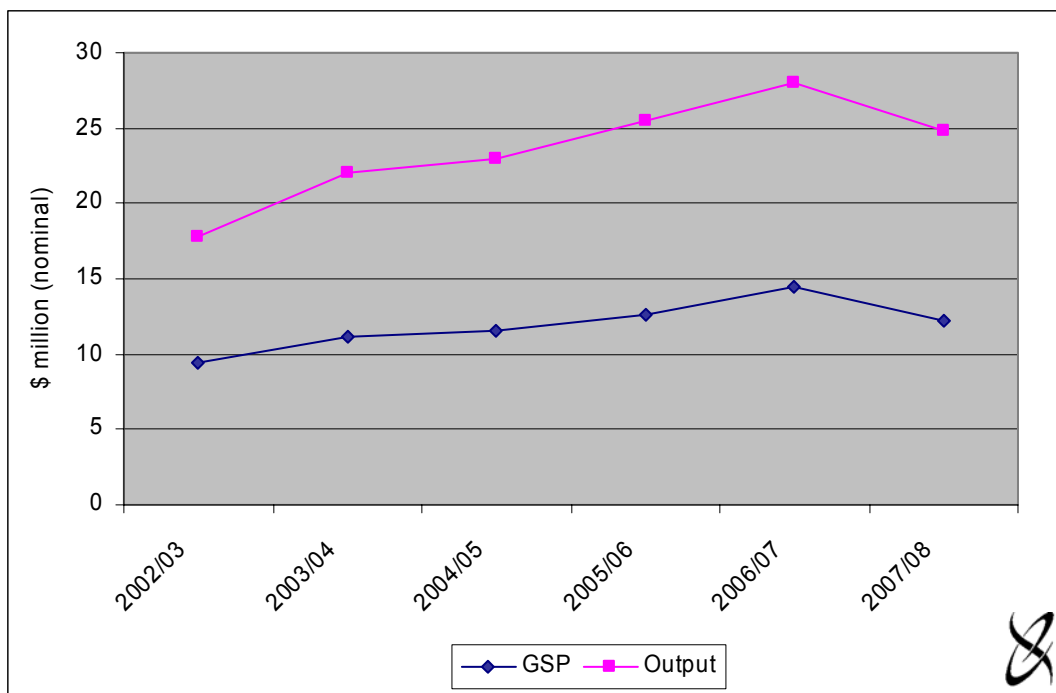
Contribution to GSP and GRP...

As noted above, contribution to GSP or GRP is measured as value of output less the cost of goods and services (including imports) used in producing the output. In 2007/08, total Lakes and Coorong fishing industry related contribution to GSP in South Australia was \$14.1 million (\$8.5 million in the Murraylands region), \$5.2 million generated by fishing directly, \$2.1 million generated by downstream activities and \$6.7 million generated in other sectors of the state economy.

Total impact over time...

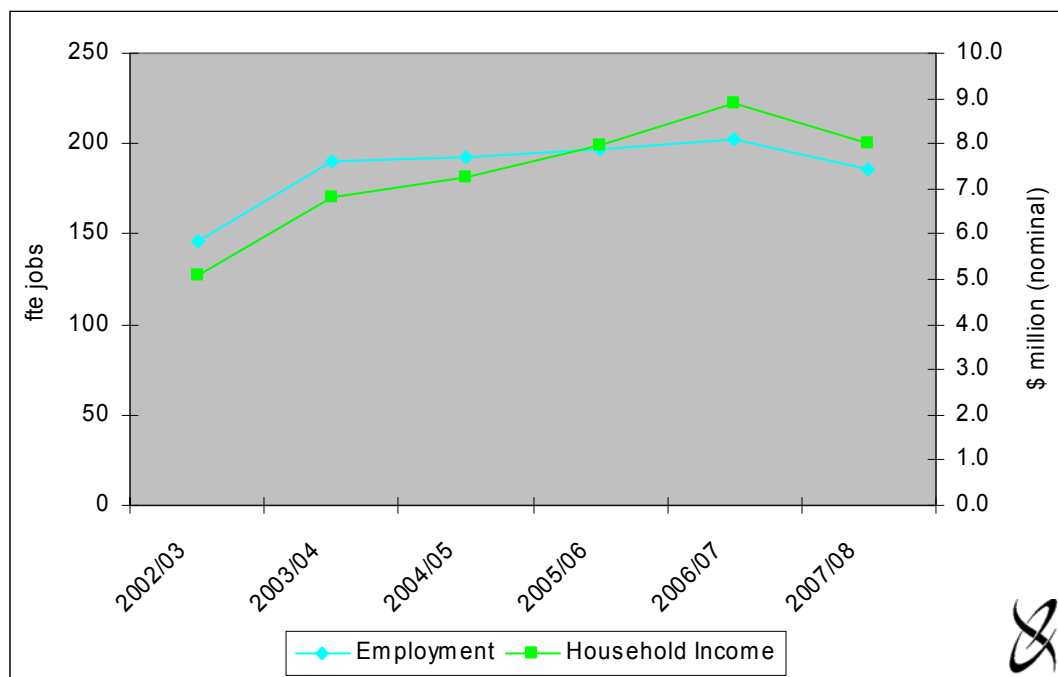
Figures 3.5 and 3.6 illustrate the total economic impact of the fishery on the SA economy for the five-year period, 2002/03 to 2007/08. Estimates of economic impact are expressed in nominal terms. No adjustment has been made for inflation.

Figure 3.5 Total gross state product and output impact of the Lakes and Coorong fishery on the SA economy, 2002/03 to 2007/08



Source: EconSearch (2008a) and EconSearch analysis.

Figure 3.6 Total employment and household income impact of the Lakes and Coorong fishery on the SA economy, 2002/03 to 2007/08



Source: EconSearch (2008a) and EconSearch analysis.

As estimates of economic impact are based on different survey samples and techniques, some of the variability between years, is therefore, attributable to sampling variability.

Estimates of economic impact for 2002/03 to 2004/05 are based on the first survey of licence holders conducted in October 2003. Estimates for 2005/06 to 2007/08 are based on a second survey of licence holders conducted in October 2006.

Care should be taken when using value of output as a measure of economic impact as it includes elements of double counting. Using contribution to GSP is the preferred measure of net contribution to the SA economy.

3.6 Economic Rent

Economic rent¹² is a measure of the economic efficiency with which a resource is utilised. If there are too many boats in a fishery, too much gear and too many people employed in a fishery, relative to the sustainable catch, business profits will be poor and economic rent will be correspondingly low or negative. With the prosperity of licence holders and legislative objectives in mind, a fishery should be managed in a manner that aims to maximise economic rent¹³.

¹² Economic rent is defined as the difference between the price of a good produced using a natural resource and the unit costs of turning that natural resource into the good. In this case the natural resource is the Lakes and Coorong Fishery and the good produced is the landed fish.

¹³ Where a fishery has limited entry and transferable licences (as with the Lakes and Coorong Fishery), the licences will carry a value that reflects the economic rents generated by the fishery. That is to say, the rents are capitalised into the licence values. As many licence holders view their licence as, at least, one component of their retirement or superannuation fund, it is important that the fishery is managed in a way that maximises the rents generated by the fishery.

The long term costs all need to be covered if the licence holder is to remain in the fishery. These long-term costs include direct operating costs such as fuel, labour (including the opportunity cost of a self employed fisher's own labour), bait, overheads such as administration and licence fees and the cost of capital invested in the boat and gear (excluding licence). Capital cost includes depreciation and the opportunity cost of the capital applied to the fishery. The opportunity cost is equivalent to what the fisher's investment could have earned in the next best alternative use.

The economic rent for the years 2002/03 to 2007/08 for the Lakes and Coorong Fishery is outlined in Table 3.9. The economic rent generated in the Lakes and Coorong Fishery was estimated to be approximately \$1.7 million in 2007/08 (Table 3.9), a 15 per cent increase compared to the previous year.

Table 3.9 Economic rent in the Lakes and Coorong Fishery, 2002/03 to 2007/08 ^a

| | Economic Rent (\$'000) | | | | | |
|---|------------------------|---------|---------|---------|---------|---------|
| | 2002/03 | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 |
| Gross Income | 4,466 | 5,382 | 5,495 | 5,924 | 7,143 | 7,544 |
| Less Labour | 1,972 | 2,071 | 2,237 | 2,168 | 2,474 | 2,476 |
| Less Cash Costs (materials and services less labour and interest) | 1,530 | 1,591 | 1,717 | 1,785 | 2,013 | 2,034 |
| Less Depreciation | 504 | 519 | 650 | 556 | 725 | 819 |
| Less Opportunity Cost of Capital (@10%) | 303 | 312 | 391 | 375 | 489 | 552 |
| Economic Rent | 156 | 888 | 501 | 1,039 | 1,442 | 1,663 |

^a Adjusted for bias.

Source: EconSearch analysis.

4. Other Indicators

4.1 Factors Influencing the Economic Condition of the Lakes and Coorong Fishery

There are a number of factors in 2007/08 that have impacted on the economic performance of the fishery. Most of these are likely to continue to affect economic outcomes in the future.

4.1.1 Environmental/Climatic Conditions

In the survey of licence holders of November 2006, respondents highlighted drought as a factor that influences economic returns. Reduction in catch as a result of drought generally affects finfish species. Drought conditions can also have a negative influence on cockle recruitment. Rough weather periods and hot weather affects the oxygen levels and can influence the ability to catch some species.

Due to the individual needs of many native fish species in the Lakes and Coorong Fishery, the volume, timing, duration, frequency and quality of water released into the lower lakes and Coorong is critical to spawning and recruitment success, overall population health and productivity levels (Pierce and Doonan 1999). Reduced river flows from the River Murray also affect the migration of fish into some areas of the Coorong. Reduced flows and less frequent flooding have caused sand to build up in and around the Murray Mouth that impedes migration of marine species into the Lakes and Coorong and reduces water quality. Dredging operations have been undertaken to maintain the Murray Mouth since 2003.

Fish-ways have been introduced to barrages to allow fish movement between marine environments and freshwater systems. The introduction of pilot fish ways will be beneficial to the Lakes and Coorong Fishery in the medium to long term.

Crabs and stingrays are predators to some Lakes and Coorong species, thus an increase in their population can impact on the economic performance of the fishery.

4.1.2 Stock Assessment

A status report for all key species in the Lakes and Coorong Fishery is undertaken on an annual basis. In these reports fishery-dependent data are used to assess the performance of the Lakes and Coorong Fishery against the Performance Indicators prescribed in the Management Plan (Sloan 2005).

Further information about the condition of the stocks of key species can be found in the Management Plan for the South Australian Lakes and Coorong Fishery (Sloan 2005).

4.1.3 Pipi Quota Management System

An increase in catch and effort in the commercial harvest of Pipi (Goolwa Cockles) has led to a review of the management arrangements. In December 2007, Pipi moved to a quota management system.

4.1.4 Marine Stewardship Council Certification

In June 2008 Marine Stewardship Council (MSC) certification was awarded to selected species targeted by Lakes and Coorong Fishery licence holders, namely:

- Mulloway;
- Cockle (Pipi);
- Golden Perch (Callop); and
- Yellow Eyed Mullet.

The MSC certification is awarded to fisheries that meet certain standards for sustainable fishing and seafood traceability. MSC certification can be used as a marketing tool by the licence holders in the fishery to improve the value of their products.

4.2 Licence Holder Comments

A number of licence holders, who participated in the November 2006 survey, raised several key issues that they felt affected the economic performance of their individual operations and the performance of the Lakes and Coorong Fishery as a whole. Licence holder comments relate to the following issues:

- licence fees;
- markets for products;
- stock assessment system;
- value adding in the fishery;
- management; and
- environmental issues.

The specific comments provided by licence holders on each of these issues are summarised in the previous years report (EconSearch 2007).

4.3 Prices for Lakes and Coorong Fishery Product

4.3.1 Wholesale prices for Lakes and Coorong Fishery species in South Australia

An outline of wholesale prices for fish species in South Australia for the period 1992/93 to 2007/08 is provided in Table 4.1. Wholesale prices in SA have trended upwards during this period for most species.

Table 4.1 Average annual wholesale price for Lakes and Coorong Fishery species, South Australia, 1992/93 to 2007/08 (\$/kg)

| | 1992/93 | 1993/94 | 1994/95 | 1995/96 | 1996/97 | 1997/98 | 1998/99 | 1999/00 | 2000/01 | 2001/02 | 2002/03 | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 |
|-------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Australian Salmon | \$1.00 | \$1.00 | - | \$1.20 | \$1.33 | \$1.25 | \$1.33 | \$1.25 | \$1.00 | \$1.00 | \$1.00 | \$1.50 | \$1.25 | \$1.33 | \$1.50 | \$1.67 |
| Black Bream | \$5.67 | \$7.00 | \$8.33 | \$8.25 | \$8.50 | \$10.50 | \$10.00 | \$9.25 | \$8.29 | \$8.75 | \$9.17 | \$10.00 | \$9.17 | \$9.86 | \$12.75 | \$10.25 |
| Bony Bream | \$0.36 | \$0.33 | \$0.38 | \$0.37 | \$0.37 | \$0.40 | \$0.41 | \$0.52 | \$0.50 | \$0.87 | \$1.07 | \$1.00 | \$1.00 | \$1.00 | \$1.00 | \$1.00 |
| Callop | \$3.75 | \$4.07 | \$5.52 | \$6.23 | \$7.85 | \$7.36 | \$7.98 | \$9.81 | \$8.25 | \$4.94 | \$10.89 | \$10.18 | \$10.09 | \$9.93 | \$9.30 | \$10.80 |
| European Carp | \$0.42 | \$0.37 | \$0.52 | \$0.38 | \$0.37 | \$0.40 | \$0.63 | \$0.90 | \$0.79 | \$0.95 | \$0.72 | \$0.70 | \$0.66 | \$1.24 | \$1.19 | \$1.50 |
| Goolwa Cockle | \$0.97 | \$0.83 | \$0.83 | \$0.84 | \$0.77 | \$0.61 | \$0.99 | \$0.83 | \$1.13 | \$0.97 | \$1.16 | \$1.34 | \$1.22 | \$1.61 | \$1.95 | \$3.37 |
| Flounder | \$3.93 | \$4.50 | \$4.50 | \$4.57 | \$4.93 | \$5.64 | \$4.71 | \$5.48 | \$5.95 | \$7.04 | \$8.83 | \$8.17 | \$8.67 | \$8.86 | \$10.20 | \$10.00 |
| Yellow-Eye Mullet | \$1.30 | \$1.49 | \$1.36 | \$1.49 | \$1.73 | \$1.56 | \$1.90 | \$2.34 | \$2.52 | \$2.33 | \$2.35 | \$2.32 | \$2.23 | \$2.46 | \$2.84 | \$2.88 |
| Mulloway | \$3.88 | \$3.79 | \$4.23 | \$4.18 | \$4.02 | \$4.40 | \$4.36 | \$5.07 | \$4.40 | \$4.90 | \$5.73 | \$5.23 | \$5.54 | \$5.08 | \$6.20 | \$7.13 |
| Redfin | \$2.03 | \$1.86 | \$2.47 | \$2.86 | \$2.73 | \$2.55 | \$2.75 | \$2.83 | \$3.16 | \$3.30 | \$4.17 | n.a. | n.a. | n.a. | n.a. | n.a. |
| Other Species | \$1.00 | \$1.67 | \$2.00 | \$1.33 | \$1.63 | \$2.25 | \$3.25 | \$3.60 | \$2.80 | \$6.00 | \$3.50 | \$3.50 | \$3.86 | \$4.38 | \$4.92 | \$5.54 |
| Total | \$0.89 | \$0.87 | \$1.15 | \$1.15 | \$1.15 | \$1.10 | \$1.39 | \$1.49 | \$1.59 | \$1.59 | \$1.53 | \$1.63 | \$1.64 | \$2.02 | \$2.23 | \$2.75 |

Source: Derived from Knight et al. (2004) and SARDI Aquatic Sciences.

4.3.2 Prices for Lakes and Coorong Fishery product in other domestic markets

As stated in Section 3.1, the gross value of catch data sourced from SARDI Aquatic Sciences are estimated on the basis of information provided by processors in South Australia.

The differential between wholesale prices in Adelaide and in the Sydney and Melbourne fish markets is illustrated in Table 4.2 for the three years 2005/06 to 2007/08 and in Figure 4.1 for 2007/08. Even allowing for freight and commission, it is likely that the gross value of production estimates for the Lakes and Coorong Fishery, as estimated by SARDI Aquatic Sciences (Knight et al. 2004), have been underestimated.

The lower prices obtained in Adelaide for some species can be attributed to two interrelated factors. One is that the average quality of fish sold in Adelaide is not as high as that being marketed interstate. The second factor is that consumer numbers in specialist markets (e.g. Asian and Jewish) are much lower in Adelaide than interstate and, therefore, there is not the demand to support prices for the high quality product sought in these markets.

In years where the catch of some species is low Adelaide prices reach a similar level to Melbourne and Sydney. Catch of Black Bream dropped to 7 tonnes in 2006/07 (Table 3.1), accordingly, there was only a small difference in price between Adelaide, Sydney and Melbourne.

Table 4.2 Prices for Lakes and Coorong Fishery species; wholesale prices in South Australia and the Melbourne and Sydney fish markets, 2005/06 to 2007/08^a

| Major Species | Adelaide | | | Melbourne ^b | | | Sydney ^{b,c} | | |
|-------------------|----------|---------|---------|------------------------|---------|---------|-----------------------|---------|---------|
| | 2005/06 | 2006/07 | 2007/08 | 2005/06 | 2006/07 | 2007/08 | 2005/06 | 2006/07 | 2007/08 |
| Australian Salmon | \$1.33 | \$1.50 | \$1.67 | \$1.36 | \$6.85 | \$1.38 | \$1.38 | \$1.52 | \$1.38 |
| Black Bream | \$9.86 | \$12.75 | \$10.25 | \$10.02 | \$10.82 | \$9.42 | \$10.04 | \$10.15 | \$11.23 |
| Bony Bream | \$1.00 | \$1.00 | \$1.00 | - | - | - | \$2.13 | \$2.38 | \$2.74 |
| Callop | \$9.93 | \$9.30 | \$10.80 | \$13.21 | \$11.76 | \$13.64 | \$16.63 | \$17.41 | \$19.52 |
| European Carp | \$1.24 | \$1.19 | \$1.50 | \$1.30 | \$1.27 | \$1.11 | \$2.10 | \$2.12 | \$2.11 |
| Goolwa Cockle | \$1.61 | \$1.95 | \$3.37 | \$3.26 | \$5.01 | \$6.99 | \$7.32 | \$9.99 | \$17.15 |
| Flounder | \$8.86 | \$10.20 | \$10.00 | \$6.19 | \$7.59 | \$8.13 | \$8.02 | \$5.53 | \$3.08 |
| Yellow-Eye Mullet | \$2.46 | \$2.84 | \$2.88 | \$1.36 | \$1.36 | \$2.96 | \$2.36 | \$2.58 | \$3.04 |
| Mulloway | \$5.08 | \$6.20 | \$7.13 | \$6.76 | \$4.41 | \$5.04 | \$7.36 | \$8.80 | \$10.33 |
| Redfin | - | - | - | \$4.62 | \$6.00 | \$6.50 | \$11.55 | \$13.63 | \$11.41 |

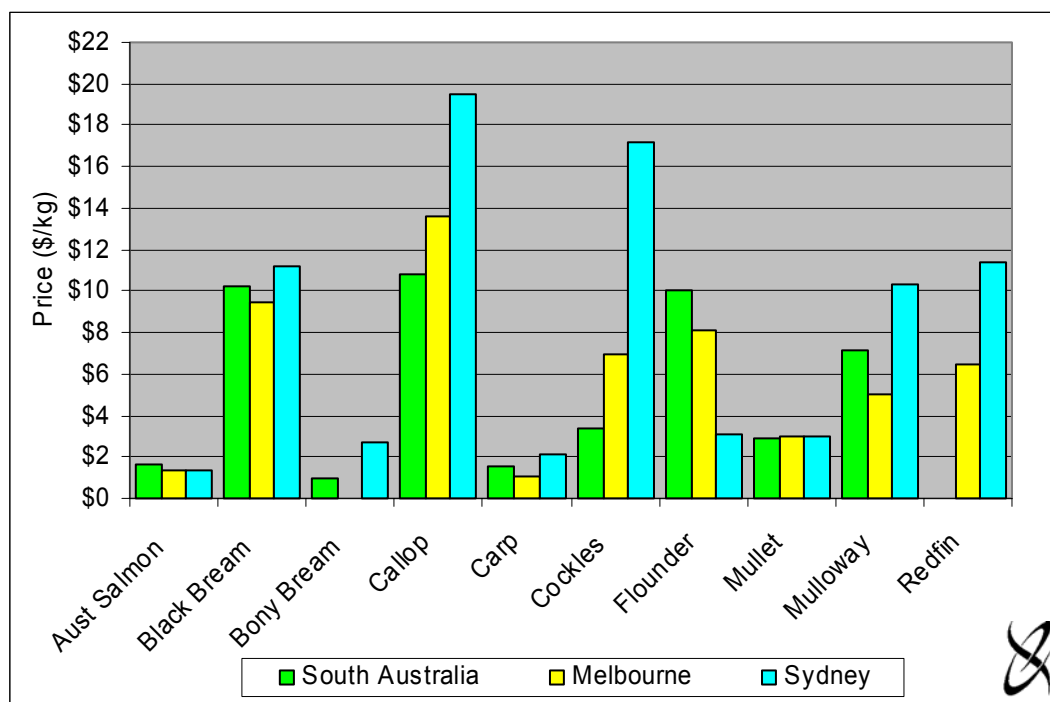
^a Weighted average nominal prices.

^b All prices reported from Sydney and Melbourne Fish Markets are wholesale, that is, before commission is taken into account. Currently, Sydney Fish Markets charges 9 per cent commission plus an environmental levy of 0.025 per cent. Melbourne Fish Market charges 11 per cent commission. Melbourne and Sydney market prices are for product from all sources within Australia.

^c Sydney market prices were not available for 2008, prices reported are for July to December 2007.

Source: SARDI Aquatic Sciences, Tim Rieniets (Melbourne Wholesale Fish Markets, pers. comm.) and Samantha Dawes (DPI – NSW Fisheries, pers. comm.)

Figure 4.1 Prices for Lakes and Coorong Fishery species in South Australia, Melbourne and Sydney, 2007/08^{a,b}



^a Where data has been omitted it was either unavailable or no product was sold in that market.

^b Sydney market prices were not available for 2008, prices reported are for July to December 2007.

Source: SARDI Aquatic Sciences and Tim Rieniets (Melbourne Wholesale Fish Markets, pers. comm.)

4.4 Contribution to the Community

In addition to the economic contribution made to the regional and state economies (Section 3.5), the Lakes and Coorong Fishery also contributes to the social, environmental and heritage values of the region, through involvement in community-support activities and contribution to the provision, maintenance and expansion of local and regional services and businesses.

4.4.1 Community-support activities

The estimated time spent on community-support activities by licence holders (including licence holder's family members and employees) in 2005/06 is summarised in Table 4.3.

On average, each licence holder (including family members and employees) spent at almost 3 days (21 hours) per month on community-support activities. Almost 6 hours per month were spent on attending fishing and Lakes and Coorong region related meetings, etc.

Table 4.3 Estimated time per month spent on community-support activities, 2005/06

| Community Activity | Hours per month | |
|---|----------------------------|----------------------------------|
| | Average Per Licence Holder | All Licence Holders ^a |
| Conservation activities (e.g. bird watch, water watch) | 1.1 | 41 |
| Marine rescue and recovery | 3.2 | 116 |
| Attending meetings, seminars, workshops | 5.9 | 211 |
| Compiling fishing-related information for research purposes | 3.0 | 107 |
| Provision of technical advice to committees, panels | 3.4 | 123 |
| Volunteering for community services (e.g. CFS, SES) | 3.3 | 119 |
| Other | 0.6 | 22 |
| Total^b | 20.5 | 737 |

^a Calculation based on scaling up average hours per month per licence holder for all 37 licence holders.

^b Totals may not sum due to rounding.

Source: 2006 survey response.

Lakes and Coorong Fishery licence holders, as a whole, spent a minimum of almost 740 hours per month on community-support activities.

Assuming the value of time foregone is approximately \$20 per hour¹⁴, the average value of each licence holder's time spent on community-support activities was at least \$410 per month or \$4,915 for the full year (2005/06). On a whole of fishery basis, the aggregate value of time spent on community-support activities was at least \$14,750 per month or around \$177,000 for the full year.

In addition to the above mentioned community-support activities, licence holders indicated that there are a number of other ways that the Lakes and Coorong Fishery contributes to social, environmental and heritage values of the local community including:

- assisting local sporting clubs (e.g. coaching, fundraising, social events);
- removal of introduced pest species of fish (i.e. carp, redfin);
- removal of rubbish from water, lake banks etc.;
- donating fish to community groups for fundraising, school camps etc.;
- caring for the elderly (e.g. cooking, donating fish, Meals on Wheels);
- reporting illegal fishing activities to PIRSA, police and National Parks and Wildlife Service;

¹⁴ Valuation of time is a difficult concept. The key question is whether one should use the value of time in work to value time spent on leisure or other non-work related activities. The use of \$20 per hour is an approximation of the opportunity cost of time in work for the average person (i.e. an approximation of the average wage rate). The Australian Bureau of Statistics used 3 methods to value volunteers' time and produced a range of estimates from \$19.29/hr to \$22.51/hr in 2006 dollars (inflated from 1997 estimates (Ironmonger 2002, p. 3)).

- assisting local schools (i.e. taking on work experience students, assisting with reading programs, donating fish for camps, supervising school camps, taking students on tours of the Coorong), etc.;
- assisting government agencies and university students undertaking research into the fishery;
- identifying aboriginal sites;
- office bearer/member of local associations (i.e. Town Hall, sporting clubs, Local Council, Parents and Friends Committee); and
- passing on valuable knowledge and information regarding the Lakes and Coorong environment and the fishing industry to local residents from outside the fishing community, tourists and recreational fishers.

4.4.2 Local and regional services/businesses

The operation of the Lakes and Coorong Fishery (and the employment the fishery generates and the households it maintains) has either directly or indirectly contributed to the provision, maintenance and expansion of a number of local and regional services and businesses. A summary of the Lakes and Coorong Fishery's contribution to various services and businesses is provided in Table 4.4.

Note that some of the fishery's contribution to the community is quantified in section 3.6, but the need for services (e.g. schools, police etc.) and the contributions to various organisations (e.g. hospitals) means the fishery contributes to the community in more ways than just generating income and the direct purchase of goods and services.

While it was difficult to quantify the contribution the fishery makes to local and regional services and businesses, an estimate was made of the number of children from fishing families and fishing families' employees that attended local schools.

Of those who participated in the survey there were 66 children (under the age of 18) who were members of fishing families and fishing families' employees in 2006/07. Thirty-one children belonged to licence holder families and 35 were children of employees. Of these 66 children, 60 of them attended local schools. Twenty-five children assisted with fishing operations.

Table 4.4 Fishery contribution to local and regional services/businesses, 2005/06

| Service/Business | Location | Fishery Contribution |
|--|---|---|
| School | Goolwa, Meningie, Milang, Victor Harbour | Children attend, donate fish, cooking classes |
| Schools/Universities | Adelaide, Goolwa, Meningie, Murray Bridge, Victor Harbour | Work experience for students, provide advice |
| Hospitality/food service industry | Clayton, Goolwa, Meningie | Supply fish |
| Sporting Clubs/Community Groups/Fundraisers | Goolwa, Meningie | Supply fish |
| Animal Welfare League | Goolwa | Supply fish |
| Fishing Club | Meningie | Donate cockles for bait |
| Fish buyers | Adelaide, Meningie | Supply fish |
| Fish processing | Meningie, Murray Bridge | Supply fish |
| Marine supplies dealers | Goolwa, Meningie | Purchase nets, tackle etc. |
| Fuel suppliers | Goolwa, Meningie | Purchase fuel for boats and vehicles |
| Hospital | Meningie | Donate fish for meals |
| Fish retailers (e.g. supermarkets, butchers, fish shops) | Meningie, Murray Bridge | Supply fish |
| Freight carriers | Adelaide, Goolwa, Meningie, Murray Bridge | Transport fish to markets |
| Ice suppliers | Meningie, Murray Bridge, Victor Harbour | Purchase ice |
| Cockle processors/exporters | Goolwa | Supply cockles |
| Mechanics | Goolwa, Meningie | Vehicle and boat maintenance |
| Boat makers | Goolwa | Purchase boats and motors |
| SZ rock lobster licence holders | Kangaroo Island, Kingston SE | Supply bait |

Source: 2006 survey response.

4.5 Other Indicators

In addition to financial information, a range of other information was collected from licence holders during the survey regarding their fishing operations.

4.5.1 Time in fishery

The number of years that individual licence holders in the Lakes and Coorong Fishery had owned fishing licences ranged from 1 year to 42 years, with an average length of ownership by individual licence holders of 15 years.

Several fishing families have held licences for a number of generations. On average, each family had held a licence for 17 years, however, some licences had been held by fishing families by up to 56 years.

4.5.2 Age of licence holders

The majority of licence holders were aged between 36 and 50 years at the time of the survey, with the highest number of licence holders in the 36-40 year and 46-50 year age bracket (25 per cent in each) (Table 4.5).

The average age of Lakes and Coorong Fishery licence holders is considerably lower than that for South Australian owner/managers of broad acre and livestock properties. In 2004/05, the average age of farm owner/managers was 53 years (ABARE 2006).

Table 4.5 Age of Lakes and Coorong Fishery licence holders, 2005/06

| Age Bracket (years) | Number from Survey Sample | Proportion |
|---------------------|---------------------------|------------|
| < 25 | 0 | 0% |
| 26-30 | 0 | 0% |
| 31-35 | 1 | 4% |
| 36-40 | 6 | 25% |
| 41-45 | 4 | 17% |
| 46-50 | 6 | 25% |
| 51-55 | 2 | 8% |
| 55-60 | 1 | 4% |
| > 60 | 4 | 17% |
| Total | 24 | 100% |

Source: 2006 survey response.

4.5.3 Fishing location

Survey respondents fished in three locations: the lakes (i.e. Lakes Alexandrina and Albert), the Coorong and the Southern Ocean (near the River Murray mouth). The majority of licence holders (approximately 60 per cent) indicated that they fished in more than one of these locations during the 2005/06 season. In 2005/06, the lakes were the most popular location fished. Eighty-three per cent of survey respondents (20 licence holders) indicated that they fished in the lakes, 67 per cent (16 licence holders) fished in the Coorong and 46 per cent fished in the ocean (11 licence holders). Survey respondents advised that the ability of licence holders to shift effort between environments and between species contributes to the long-term viability and sustainability of the resource.

4.5.4 Value of catch and effort data

Catch and effort data, recorded and submitted monthly to SARDI by Lakes and Coorong Fishery licence holders, are used in stock assessment and stock status reports. These data may also be used for other research, for example, these data are of particular interest to recreational fishers and for researchers monitoring the impact of changes in river management (i.e. changes in salinity, flow rates, river height etc.) on the health of the Lakes and Coorong ecosystem.

It was estimated from the 2006 survey of licence holders that, in total, licence holders spent approximately 107 hours per month compiling catch and effort data in 2005/06, which equated to 1,280 hours for the year. The value of licence holder's time spent on the collection of catch and effort data was almost \$26,000¹⁵ in total in 2005/06.

¹⁵ Assuming the value of licence holder's time foregone is approximately \$20/hour (section 4.3.1).

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Appendix 1 Economic Impact of the Lakes and Coorong Fishery, 2006/07

Appendix Table 1.1 The economic impact of the Lakes and Coorong fishing industry in South Australia, 2006/07

| Sector | Output | | Employment ^a | | Household Income | | Contribution to GSP | |
|-----------------------------------|-------------|---------------|-------------------------|---------------|------------------|---------------|---------------------|---------------|
| | (\$m) | % | (fte jobs) | % | (\$m) | % | (\$m) | % |
| Direct effects | | | | | | | | |
| Fishing | 7.1 | 25.5% | 74 | 36.4% | 3.1 | 35.4% | 4.8 | 33.6% |
| Processing | 1.4 | 5.1% | 4 | 2.2% | 0.2 | 2.4% | 0.3 | 2.3% |
| Transport | 1.2 | 4.3% | 6 | 2.7% | 0.4 | 4.5% | 0.6 | 4.0% |
| Retail | 1.5 | 5.4% | 22 | 10.7% | 0.6 | 7.1% | 0.8 | 5.2% |
| Food services | 1.5 | 5.5% | 13 | 6.3% | 0.4 | 4.4% | 0.6 | 4.2% |
| Capital expenditure ^b | 0.3 | 1.2% | 2 | 1.2% | 0.1 | 1.0% | 0.1 | 0.9% |
| Total Direct ^c | 13.2 | 45.8% | 121 | 58.4% | 4.9 | 53.7% | 7.2 | 49.4% |
| Flow-on effects | | | | | | | | |
| Trade | 2.4 | 8.4% | 26 | 12.6% | 0.9 | 9.9% | 1.1 | 7.6% |
| Manufacturing | 3.0 | 10.9% | 9 | 4.7% | 0.4 | 5.0% | 0.7 | 4.9% |
| Business Services | 1.9 | 6.8% | 11 | 5.5% | 0.7 | 7.8% | 0.9 | 6.3% |
| Transport | 0.7 | 2.5% | 3 | 1.6% | 0.2 | 2.6% | 0.3 | 2.3% |
| Other Sectors | 6.9 | 24.5% | 32 | 16.0% | 1.8 | 19.9% | 4.1 | 28.5% |
| Total Flow-on ^c | 14.9 | 53.0% | 82 | 40.4% | 4.0 | 45.2% | 7.2 | 49.7% |
| Total ^c | 28.1 | 100.0% | 203 | 100.0% | 8.9 | 100.0% | 14.4 | 100.0% |
| Total/Direct | 2.1 | - | 1.7 | - | 1.8 | - | 2.0 | - |
| Total/Tonne | \$11,400 | - | 0.08 | - | \$3,600 | - | \$5,901 | - |

^a Full-time equivalent jobs. Direct employment in the fishing industry was comprised of 52 full-time jobs and 51 part-time jobs, that is, 103 jobs in aggregate.

^b Capital expenditure includes expenditure on boats, fishing gear and equipment, sheds and buildings, motor vehicles and other equipment.

^c Totals may not sum due to rounding.

Source: EconSearch (2008a).

Appendix Table 1.2 The economic impact of the Lakes and Coorong fishing industry in the Murraylands region, 2006/07

| Sector | Output | | Employment ^a | | Household Income | | Contribution to GRP | |
|-----------------------------------|-------------|---------------|-------------------------|---------------|------------------|---------------|---------------------|---------------|
| | (\$m) | % | (fte jobs) | % | (\$m) | % | (\$m) | % |
| Direct effects | | | | | | | | |
| Fishing | 7.1 | 50.6% | 74 | 59.8% | 3.1 | 62.6% | 4.8 | 58.7% |
| Processing | 0.7 | 5.1% | 2 | 1.8% | 0.1 | 1.9% | 0.2 | 2.3% |
| Transport | 0.6 | 4.3% | 4 | 3.2% | 0.2 | 4.3% | 0.3 | 3.5% |
| Retail | 0.0 | 0.3% | 1 | 0.6% | 0.0 | 0.4% | 0.0 | 0.3% |
| Food services | 0.0 | 0.3% | 0 | 0.4% | 0.0 | 0.2% | 0.0 | 0.2% |
| Capital expenditure ^b | 0.2 | 1.2% | 2 | 1.9% | 0.1 | 1.3% | 0.1 | 1.1% |
| Total Direct ^c | 8.7 | 60.6% | 84 | 65.8% | 3.5 | 69.3% | 5.5 | 65.1% |
| Flow-on effects | | | | | | | | |
| Trade | 1.2 | 8.8% | 17 | 13.5% | 0.5 | 9.3% | 0.6 | 7.1% |
| Manufacturing | 0.7 | 4.7% | 2 | 1.7% | 0.1 | 1.7% | 0.2 | 2.1% |
| Business Services | 0.4 | 3.1% | 3 | 2.3% | 0.1 | 3.0% | 0.2 | 2.5% |
| Transport | 0.2 | 1.4% | 1 | 1.0% | 0.1 | 1.4% | 0.1 | 1.1% |
| Other Sectors | 2.9 | 20.2% | 17 | 13.8% | 0.7 | 14.0% | 1.7 | 20.9% |
| Total Flow-on ^c | 5.4 | 38.1% | 40 | 32.3% | 1.5 | 29.4% | 2.8 | 33.9% |
| Total ^c | 14.1 | 100.0% | 123 | 100.0% | 5.0 | 100.0% | 8.3 | 100.0% |
| Total/Direct | 1.6 | - | 1.5 | - | 1.4 | - | 1.5 | - |
| Total/Tonne | \$5,700 | - | 0.05 | - | \$2,000 | - | \$3,300 | - |

^a Full-time equivalent jobs. Direct employment in the fishing industry was comprised of 52 full-time jobs and 50 part-time jobs, that is, 103 jobs in aggregate.

^b Capital expenditure includes expenditure on boats, fishing gear and equipment, sheds and buildings, motor vehicles and other equipment.

^c Totals may not sum due to rounding.

Source: EconSearch (2008a).

Appendix 2 Financial Performance, 2002/03 to 2004/05

Appendix Table 2.1 Financial performance in the Lakes and Coorong Fishery, 2002/03 to 2004/05

| | 2002/03 | | 2003/04 | | 2004/05 | |
|---|---------------------|---------------|---------------------|---------------|---------------------|---------------|
| | Average per Licence | Share of TBCC | Average per Licence | Share of TBCC | Average per Licence | Share of TBCC |
| (1) Total Boat Gross Income | \$132,648 | | \$159,852 | | \$163,222 | |
| Variable Costs | | | | | | |
| Fuel | \$9,497 | 9% | \$9,850 | 9% | \$10,836 | 9% |
| Repairs & Maintenance ^a | \$7,134 | 7% | \$7,497 | 7% | \$8,112 | 7% |
| Bait/Ice | \$1,211 | 1% | \$1,272 | 1% | \$1,376 | 1% |
| Provisions | \$1,086 | 1% | \$1,141 | 1% | \$1,235 | 1% |
| Labour - paid | \$25,512 | 24% | \$27,025 | 24% | \$29,307 | 24% |
| (2) - unpaid ^b | \$30,446 | 28% | \$32,252 | 28% | \$34,974 | 29% |
| Other | \$13,821 | 13% | \$14,238 | 13% | \$14,702 | 12% |
| (3) Total Variable Costs | \$88,707 | 82% | \$93,275 | 82% | \$100,542 | 82% |
| Fixed Costs | | | | | | |
| Licence Fee ^c | \$4,870 | 5% | \$5,175 | 5% | \$6,390 | 5% |
| Insurance | \$1,227 | 1% | \$1,264 | 1% | \$1,306 | 1% |
| (4) Interest | \$4,177 | 4% | \$4,285 | 4% | \$4,394 | 4% |
| (5) Labour - unpaid ^b | \$2,617 | 2% | \$2,718 | 2% | \$2,813 | 2% |
| Legal & Accounting | \$1,423 | 1% | \$1,465 | 1% | \$1,513 | 1% |
| Telephone etc. | \$1,477 | 1% | \$1,522 | 1% | \$1,572 | 1% |
| Slipping & Mooring | \$0 | 0% | \$0 | 0% | \$0 | 0% |
| Travel | \$452 | 0% | \$465 | 0% | \$480 | 0% |
| Office & Admin | \$3,262 | 3% | \$3,360 | 3% | \$3,470 | 3% |
| (6) Total Fixed Costs | \$19,505 | 18% | \$20,256 | 18% | \$21,938 | 18% |
| (7) Total Boat Cash Costs (3 + 6) | \$108,212 | 100% | \$113,531 | 100% | \$122,480 | 100% |
| Boat Gross Margin (1 - 3) | \$43,941 | | \$66,577 | | \$62,680 | |
| (8) Total Unpaid Labour (2 + 5) | \$33,063 | | \$34,969 | | \$37,787 | |
| Gross Operating Surplus (1 - 7 + 8) | \$57,499 | | \$81,291 | | \$78,529 | |
| (9) Boat Cash Income (1 - 7) | \$24,436 | | \$46,321 | | \$40,742 | |
| (10) Depreciation | \$14,968 | | \$15,420 | | \$19,303 | |
| (11) Boat Business Profit (9 - 10) | \$9,468 | | \$30,902 | | \$21,440 | |
| (12) Profit at Full Equity (11 + 4) | \$13,644 | | \$35,187 | | \$25,833 | |
| Boat Capital | | | | | | |
| (13) Fishing Gear & Equip | \$90,014 | | \$92,727 | | \$116,080 | |
| Licence Value | \$112,931 | | \$136,092 | | \$138,961 | |
| (14) Total Boat Capital | \$202,945 | | \$228,818 | | \$255,041 | |
| Rate of Return on Fishing Gear & Equip (12 / 12 * 100) | 15.2% | | 37.9% | | 22.3% | |
| Rate of Return on Total Boat Capital (12 / 14 * 100) | 6.7% | | 15.4% | | 10.1% | |

^a Repairs and maintenance is classified as a variable cost although it is likely that a proportion of these costs are fixed (e.g. regulatory maintenance).

^b Unpaid labour was divided between variable (time spent fishing and on repairs and maintenance) and fixed (management and administration duties) based on the 2003 survey responses.

^c Licence fees have been calculated based on the cost indicated by licence holders in the 2003 survey and changes in average fees per licence holder (Table 3.4).

Source: 2003 Licence holder survey and EconSearch analysis.

Appendix 3 Summary Economic Indicators for SA Commercial Fisheries

Appendix Table 3.1 Commercial fisheries catch, South Australia, 1990/91 to 2006/07 (tonnes)

| Year | Abalone | GSV Prawns | SG & WC Prawns | Sth'n Zone Rock Lobster | Nth'n Zone Rock Lobster | Blue Swimmer Crabs | Lakes and Coorong ^a | Sardines | Other Marine Species | Total SA Fisheries ^b |
|---------|---------|------------|----------------|-------------------------|-------------------------|--------------------|--------------------------------|----------|----------------------|---------------------------------|
| 1990/91 | 863 | 134 | 1,951 | 1,562 | 1,104 | 434 | 2,442 | n.a. | 7,108 | 15,598 |
| 1991/92 | 885 | 0 | 2,155 | 1,940 | 1,222 | 425 | 3,143 | 145 | 7,750 | 17,665 |
| 1992/93 | 869 | 0 | 1,645 | 1,754 | 1,064 | 511 | 2,640 | 1,230 | 7,499 | 17,212 |
| 1993/94 | 802 | 226 | 1,693 | 1,669 | 930 | 544 | 2,992 | 2,377 | 6,719 | 17,952 |
| 1994/95 | 851 | 148 | 1,911 | 1,720 | 891 | 608 | 2,884 | 2,803 | 9,744 | 21,560 |
| 1995/96 | 902 | 258 | 2,013 | 1,684 | 903 | 655 | 2,720 | 3,708 | 6,301 | 19,144 |
| 1996/97 | 903 | 211 | 1,813 | 1,635 | 893 | 464 | 2,657 | 3,428 | 6,507 | 18,511 |
| 1997/98 | 812 | 267 | 2,492 | 1,680 | 942 | 469 | 2,595 | 6,041 | 5,526 | 20,824 |
| 1998/99 | 933 | 336 | 2,425 | 1,713 | 1,016 | 501 | 2,355 | 4,465 | 4,964 | 18,708 |
| 1999/00 | 889 | 400 | 2,016 | 1,717 | 1,001 | 549 | 1,995 | 3,836 | 4,840 | 17,243 |
| 2000/01 | 867 | 384 | 2,603 | 1,716 | 846 | 556 | 2,293 | 7,368 | 5,132 | 21,765 |
| 2001/02 | 850 | 322 | 2,288 | 1,717 | 675 | 559 | 1,875 | 12,165 | 4,644 | 25,095 |
| 2002/03 | 890 | 232 | 1,508 | 1,766 | 595 | 583 | 2,030 | 21,741 | 4,048 | 33,393 |
| 2003/04 | 879 | 172 | 1,958 | 1,896 | 504 | 611 | 2,120 | 33,160 | 3,712 | 45,012 |
| 2004/05 | 902 | 213 | 1,960 | 1,897 | 446 | 632 | 2,198 | 56,952 | 3,810 | 69,010 |
| 2005/06 | 896 | 179 | 1,891 | 1,889 | 476 | 648 | 2,352 | 28,626 | 3,186 | 40,143 |
| 2006/07 | 883 | 209 | 2,024 | 1,894 | 492 | 637 | 2,443 | 30,355 | 2,978 | 41,915 |

^a Excludes the River fishery for the years 2003/04 to 2006/07.

^b Excludes aquaculture, south east non-trawl, tuna, deep water trawl.

Source: EconSearch (2008b)

Appendix Table 3.2 Commercial fisheries gross value of production, South Australia, 1990/91 to 2006/07 (\$m)

| Year | Abalone | GSV Prawns | SG & WC Prawns | Sth'n Zone Rock Lobster | Nth'n Zone Rock Lobster | Blue Swimmer Crabs ^a | Inland Waters ^b | Sardines | Other Marine Species ^c | Total SA Fisheries ^d |
|---------|---------|------------|----------------|-------------------------|-------------------------|---------------------------------|----------------------------|----------|-----------------------------------|---------------------------------|
| 1990/91 | 14.0 | 1.7 | 20.0 | 26.7 | 18.2 | 1.6 | 2.3 | na | 17.8 | 102.4 |
| 1991/92 | 15.1 | 0.0 | 19.7 | 36.3 | 21.4 | 1.4 | 2.6 | 0.2 | 21.3 | 117.9 |
| 1992/93 | 23.7 | 0.0 | 19.7 | 34.8 | 20.5 | 1.6 | 5.3 | 0.8 | 20.3 | 126.7 |
| 1993/94 | 27.2 | 3.3 | 20.9 | 43.2 | 23.4 | 1.8 | 5.6 | 1.4 | 19.2 | 146.0 |
| 1994/95 | 22.8 | 1.9 | 22.6 | 48.6 | 25.5 | 2.2 | 6.3 | 1.6 | 24.5 | 156.1 |
| 1995/96 | 22.5 | 3.5 | 22.9 | 44.6 | 23.8 | 2.5 | 6.0 | 2.5 | 21.8 | 150.1 |
| 1996/97 | 25.2 | 2.9 | 22.2 | 47.0 | 24.4 | 2.1 | 6.3 | 2.2 | 20.6 | 152.9 |
| 1997/98 | 26.9 | 4.1 | 29.2 | 50.9 | 27.7 | 2.2 | 5.5 | 3.8 | 16.7 | 166.9 |
| 1998/99 | 27.2 | 5.0 | 34.6 | 47.2 | 26.7 | 2.2 | 6.3 | 2.5 | 18.0 | 169.7 |
| 1999/00 | 32.4 | 7.6 | 36.1 | 51.2 | 29.8 | 2.5 | 7.5 | 2.7 | 19.2 | 189.1 |
| 2000/01 | 40.0 | 6.7 | 46.0 | 55.1 | 28.0 | 3.1 | 7.8 | 5.2 | 20.2 | 212.0 |
| 2001/02 | 34.8 | 5.9 | 41.5 | 65.7 | 26.2 | 3.5 | 6.0 | 8.5 | 18.5 | 210.5 |
| 2002/03 | 36.3 | 4.2 | 28.2 | 63.8 | 18.8 | 3.6 | 5.1 | 17.8 | 20.4 | 198.3 |
| 2003/04 | 31.6 | 3.1 | 40.4 | 49.3 | 12.0 | 3.6 | 5.4 | 22.5 | 21.9 | 189.9 |
| 2004/05 | 33.8 | 3.8 | 32.0 | 54.4 | 11.6 | 3.6 | 5.5 | 28.5 | 20.9 | 194.1 |
| 2005/06 | 33.9 | 2.9 | 34.0 | 65.7 | 15.4 | 5.2 | 5.9 | 16.0 | 17.4 | 196.6 |
| 2006/07 | 31.5 | 3.3 | 39.4 | 78.8 | 18.0 | 5.6 | 7.3 | 18.5 | 19.8 | 222.3 |

^a SARDI estimates for the years 1990/91 and 1991/92, revalued SARDI estimates using Baker and Pierce (1998) for the years 1992/93 to 2001/02 and survey based readjustment factors for 2002/03 to 2005/06. Excludes the River fishery for the years 2003/04 to 2006/07.

^b SARDI estimates for the years 1990/91 to 2002/03, revalued SARDI estimates for 2003/04 to 2006/07 using weighted average prices from Sydney and Melbourne fish markets and price data obtained from fishers.

^c Excludes aquaculture, south east non-trawl, tuna, deep water trawl.

Source: EconSearch (2008b).

Appendix Table 3.3 Cost of management in South Australian commercial fisheries, 2006/07

| | Licence Fees (\$'000) | GVP (\$'000) | Fees/ GVP (%) | Catch ('000kg) | Fees/ Catch (\$/kg) | Licence Holders (no.) | Fees/ Licence (\$/licence) |
|--------------------------------|--------------------------|-----------------|---------------------|-------------------|---------------------------|--------------------------|----------------------------------|
| Abalone | 2,392 | 31,529 | 7.6% | 883 | \$2.71 | 35 | \$68,339 |
| GSV Prawns | 257 | 3,270 | 7.9% | 209 | \$1.23 | 10 | \$25,715 |
| SG & WC Prawns | 914 | 39,386 | 2.3% | 2,024 | \$0.45 | 42 | \$21,761 |
| Sth'n Zone Rock Lobster | 2,976 | 78,791 | 3.8% | 1,894 | \$1.57 | 181 | \$16,442 |
| Nth'n Zone Rock Lobster | 1,164 | 17,954 | 6.5% | 492 | \$2.37 | 68 | \$17,112 |
| Blue Crabs - Pots | 267 | 5,328 | 5.0% | 595 | \$0.45 | 8 | \$33,325 |
| Blue Crabs – Marine Scale | 25 | 301 | 8.2% | 42 | \$0.59 | 6 | \$4,125 |
| Lakes and Coorong ^a | 299 | 7,330 | 4.1% | 2,383 | \$0.13 | 37 | \$8,094 |
| Marine Scalefish | 1,460 | 19,847 | 7.4% | 2,978 | \$0.49 | 349 | \$4,184 |
| Sardines | 804 | 18,517 | 4.3% | 30,355 | \$0.03 | 14 | \$57,410 |
| Total SA | 10,557 | 222,253 | 4.8% | 41,855 | \$0.25 | 750 | \$14,077 |

^a Excludes the River fishery.

Source: EconSearch (2008b).

Appendix Table 3.4 Financial performance in South Australian commercial fisheries, 2006/07, (\$'000) (average per boat)

| | Abalone | GSV Prawns | SG & WC Prawns | Sth'n Zone Rock Lob | Nth'n Zone Rock Lob | Blue Crabs ^a | Marine Scalefish ^b | Sardines | Lakes and Coorong |
|---|----------------|----------------|----------------|---------------------|---------------------|-------------------------|-------------------------------|----------------|-------------------|
| (1) Total Boat Gross Income | 946.9 | 321.8 | 870.3 | 452.6 | 347.8 | 5,628.8 | 95.1 | 1,315.9 | 216.3 |
| Variable Costs | | | | | | | | | |
| Fuel | 15.8 | 24.8 | 57.9 | 23.9 | 44.9 | 600.7 | 11.2 | 199.5 | 14.8 |
| Repairs & Maintenance | 38.7 | 14.0 | 48.5 | 21.4 | 16.9 | 533.3 | 8.7 | 98.8 | 6.8 |
| Bait/Ice | 0.3 | 0.0 | 0.0 | 10.9 | 14.8 | 66.9 | 2.3 | 2.3 | 1.4 |
| Provisions | 9.5 | 0.8 | 3.5 | 0.4 | 4.4 | 11.1 | 0.0 | 8.1 | 0.2 |
| Labour - paid | 263.6 | 96.9 | 296.0 | 91.7 | 107.0 | 1,280.3 | 12.2 | 527.3 | 33.2 |
| (2) - unpaid | 4.3 | 8.0 | 7.7 | 32.4 | 32.2 | 211.6 | 25.1 | 3.3 | 41.8 |
| Other | 10.7 | 9.6 | 21.8 | 0.7 | 5.3 | 18.5 | 0.0 | 33.5 | 16.2 |
| (3) Total Variable Costs | 342.9 | 154.2 | 435.4 | 181.5 | 225.5 | 2,722.5 | 59.3 | 872.8 | 114.5 |
| Fixed Costs | | | | | | | | | |
| Licence Fee | 67.4 | 26.9 | 24.9 | 18.7 | 21.3 | 291.4 | 5.0 | 56.4 | 9.8 |
| Insurance | 7.0 | 19.3 | 20.3 | 6.5 | 8.9 | 75.4 | 1.9 | 30.6 | 1.6 |
| (4) Interest | 5.3 | 31.1 | 44.8 | 23.6 | 34.2 | 650.1 | 4.5 | 84.9 | 5.3 |
| (5) Labour - unpaid | 18.9 | 18.3 | 8.9 | 7.6 | 14.1 | 44.4 | 4.7 | 10.2 | 7.0 |
| (6) Leasing | 0.0 | 0.0 | 0.0 | 1.9 | 12.5 | 0.0 | 0.0 | 23.4 | 0.0 |
| Legal & Accounting | 15.0 | 7.7 | 8.0 | 2.6 | 2.9 | 43.8 | 1.2 | 7.8 | 2.0 |
| Telephone etc. | 3.7 | 1.6 | 6.0 | 1.7 | 2.6 | 22.1 | 1.3 | 1.7 | 2.2 |
| Slipping & Mooring | 0.8 | 4.8 | 6.4 | 1.7 | 2.5 | 32.2 | 0.8 | 17.0 | 0.1 |
| Travel | 4.4 | 0.2 | 2.8 | 0.8 | 1.1 | 28.0 | 0.5 | 0.8 | 1.0 |
| Office & Admin | 9.2 | 0.5 | 7.5 | 2.7 | 3.8 | 86.5 | 4.8 | 6.3 | 4.9 |
| (7) Total Fixed Costs | 131.7 | 110.5 | 129.7 | 67.8 | 103.9 | 1,273.9 | 24.9 | 239.2 | 33.8 |
| (8) Total Boat Cash Costs (3 + 7) | 474.6 | 264.6 | 565.2 | 249.3 | 329.4 | 3,996.4 | 84.2 | 1,112.0 | 148.3 |
| Boat Gross Margin (1 - 3) | 603.9 | 167.7 | 434.9 | 271.1 | 122.3 | 2,906.3 | 35.7 | 443.1 | 101.8 |
| (9) Total Unpaid Labour (2 + 5) | 23.2 | 26.3 | 16.6 | 40.0 | 46.3 | 256.1 | 29.8 | 13.6 | 48.8 |
| Gross Operating Surplus | 495.4 | 83.5 | 321.8 | 243.4 | 64.7 | 1,888.5 | 40.7 | 217.5 | 116.9 |
| (10) Boat Cash Income (1 - 8) | 472.2 | 57.2 | 305.2 | 203.3 | 18.4 | 1,632.4 | 10.9 | 203.9 | 68.0 |
| (11) Depreciation | 66.3 | 129.8 | 142.2 | 47.9 | 63.0 | 349.3 | 18.3 | 211.7 | 22.0 |
| (12) Boat Business Profit (10 - 11) | 405.9 | -72.6 | 163.0 | 155.4 | -44.6 | 1,283.1 | -7.4 | -7.8 | 46.1 |
| (13) Profit at Full Equity (12 + 4 + 6) | 411.3 | -41.6 | 207.8 | 180.9 | 2.1 | 1,933.1 | -2.9 | 100.5 | 51.3 |
| Boat Capital | | | | | | | | | |
| (14) Fishing Gear & Equip | 332.7 | 960.9 | 1,289.6 | 351.5 | 490.4 | 3,468.5 | 130.1 | 2,763.6 | 148.1 |
| Licence Value | 7,947.3 | 2,695.3 | 4,966.9 | 3,079.3 | 1,577.5 | 28,798.6 | 184.2 | 3,318.7 | 214.0 |
| (15) Total Boat Capital | 8,280.0 | 3,656.2 | 6,256.5 | 3,430.8 | 2,067.9 | 32,267.1 | 314.3 | 6,082.3 | 362.1 |
| Rate of Return on Fishing Gear & Equip (13 / 14 * 100) | 123.6% | -4.3% | 16.1% | 51.5% | 0.4% | 55.7% | -2.2% | 3.6% | 34.7% |
| Rate of Return on Total Boat Capital (13 / 15 * 100) | 5.0% | -1.1% | 3.3% | 5.3% | 0.1% | 6.0% | -0.9% | 1.7% | 14.2% |

^a Financial performance for blue crab are on a whole fishery basis.

^b Excludes the Commonwealth managed fisheries: south east non-trawl, tuna, deep water trawl.

^c Earnings before interest and tax.

Source: EconSearch (2008b).

Appendix Table 3.5 Costs as a percentage of total cash costs in South Australian commercial fisheries, 2006/07

| | Abalone | GSV Prawns | SG & WC Prawns | Sth'n Zone Rock Lob | Nth'n Zone Rock Lob | Blue Crabs | Marine Scalefish ^a | Sardines | Lakes and Coorong |
|-----------------------------|-------------|-------------|----------------|---------------------|---------------------|-------------|-------------------------------|-------------|-------------------|
| Variable Costs | | | | | | | | | |
| Fuel | 3% | 9% | 10% | 10% | 14% | 15% | 13% | 18% | 10% |
| Repairs & Maintenance | 8% | 5% | 9% | 9% | 5% | 13% | 10% | 9% | 5% |
| Bait/Ice | 0% | 0% | 0% | 4% | 5% | 2% | 3% | 0% | 1% |
| Provisions | 2% | 0% | 1% | 0% | 1% | 0% | 0% | 1% | 0% |
| Labour - paid | 56% | 37% | 52% | 37% | 32% | 32% | 14% | 47% | 22% |
| - unpaid | 1% | 3% | 1% | 13% | 10% | 5% | 30% | 0% | 28% |
| Other | 2% | 4% | 4% | 0% | 2% | 0% | 0% | 3% | 11% |
| Fixed Costs | | | | | | | | | |
| Licence Fee | 14% | 10% | 4% | 7% | 6% | 7% | 6% | 5% | 7% |
| Insurance | 1% | 7% | 4% | 3% | 3% | 2% | 2% | 3% | 1% |
| Interest | 1% | 12% | 8% | 9% | 10% | 16% | 5% | 8% | 4% |
| Labour - unpaid | 4% | 7% | 2% | 3% | 4% | 1% | 6% | 1% | 5% |
| Leasing | 0% | 0% | 0% | 1% | 4% | 0% | 0% | 2% | 0% |
| Legal & Accounting | 3% | 3% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| Telephone etc. | 1% | 1% | 1% | 1% | 1% | 1% | 2% | 0% | 2% |
| Slipping & Mooring | 0% | 2% | 1% | 1% | 1% | 1% | 1% | 2% | 0% |
| Travel | 1% | 0% | 0% | 0% | 0% | 1% | 1% | 0% | 1% |
| Office & Admin | 2% | 0% | 1% | 1% | 1% | 2% | 6% | 1% | 3% |
| Total Variable Costs | 72% | 58% | 77% | 73% | 68% | 68% | 70% | 78% | 77% |
| Total Fixed Costs | 28% | 42% | 23% | 27% | 32% | 32% | 30% | 22% | 23% |
| Total Cash Costs | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

^a Excludes Commonwealth managed fisheries: south east non-trawl, tuna, deep water trawl.

Source: EconSearch (2008b).

Appendix Table 3.6 Economic impacts of South Australian commercial fisheries, 2006/07

| | Abalone | GSV Prawns | SG & WC Prawns | Sth'n Zone Rock Lob | Nth'n Zone Rock Lob | Blue Crabs | Marine Scalefish | Sardines | Lakes and Coorong | All Fisheries ^a |
|---|-------------|-------------|----------------|---------------------|---------------------|-------------|------------------|-------------|-------------------|----------------------------|
| Output (\$m) | | | | | | | | | | |
| Direct | | | | | | | | | | |
| Fishing | 31.5 | 3.3 | 39.4 | 78.8 | 18.0 | 5.6 | 19.8 | 18.5 | 7.3 | 222.3 |
| Downstream ^b | 5.1 | 2.0 | 17.5 | 24.6 | 6.8 | 3.1 | 9.5 | 3.3 | 5.9 | 77.7 |
| All other sectors (indirect) | 29.8 | 6.0 | 52.4 | 88.3 | 18.0 | 8.9 | 43.4 | 24.6 | 14.8 | 286.2 |
| Total | 66.4 | 11.3 | 109.3 | 191.6 | 42.7 | 17.6 | 72.8 | 46.4 | 28.1 | 586.2 |
| Total/Direct | 1.8 | 2.1 | 1.9 | 1.9 | 2.4 | 2.0 | 2.5 | 2.1 | 2.1 | 2.0 |
| Total/Tonne (\$) | \$75,100 | \$54,100 | \$54,000 | \$101,100 | \$119,200 | \$27,600 | \$24,400 | \$1,500 | \$11,700 | \$13,023 |
| Contribution to GSP (\$m) | | | | | | | | | | |
| Direct | | | | | | | | | | |
| Fishing | 25.2 | 2.1 | 30.3 | 61.1 | 7.8 | 3.7 | 6.1 | 11.4 | 5.0 | 152.6 |
| Downstream | 1.8 | 0.8 | 7.2 | 9.7 | 2.7 | 1.1 | 3.5 | 1.5 | 2.3 | 30.6 |
| All other sectors (indirect) | 14.5 | 2.9 | 25.2 | 42.6 | 16.3 | 4.2 | 20.4 | 11.7 | 7.1 | 145.0 |
| Total | 41.5 | 5.9 | 62.8 | 113.4 | 26.9 | 8.9 | 30.0 | 24.5 | 14.5 | 328.3 |
| Total/Direct | 1.5 | 2.0 | 1.7 | 1.6 | 2.5 | 1.9 | 3.1 | 1.9 | 2.0 | 1.8 |
| Total/Tonne (\$) | \$46,900 | \$28,200 | \$31,000 | \$59,800 | \$54,500 | \$13,900 | \$10,066 | \$807 | \$6,096 | \$7,293 |
| Employment (fte jobs) ^c | | | | | | | | | | |
| Direct | | | | | | | | | | |
| Fishing | 123 | 37 | 217 | 424 | 185 | 29 | 540 | 63 | 74 | 1,692 |
| Downstream | 23 | 20 | 167 | 140 | 41 | 17 | 73 | 20 | 46 | 547 |
| All other sectors (indirect) | 163 | 33 | 289 | 479 | 186 | 48 | 235 | 134 | 82 | 1,647 |
| Total | 308 | 89 | 673 | 1,043 | 412 | 93 | 848 | 217 | 201 | 3,885 |
| Total/Direct | 2.1 | 1.6 | 1.8 | 1.8 | 1.8 | 2.0 | 1.4 | 2.6 | 1.7 | 1.7 |
| Total/Tonne | 0.35 | 0.43 | 0.33 | 0.55 | 0.84 | 0.15 | 0.28 | 0.01 | 0.08 | 0.09 |
| Household Income (\$m) | | | | | | | | | | |
| Direct | | | | | | | | | | |
| Fishing | 9.1 | 1.2 | 12.3 | 22.7 | 6.7 | 1.5 | 6.1 | 6.7 | 3.2 | 69.5 |
| Downstream | 1.2 | 0.6 | 5.2 | 6.7 | 1.9 | 0.7 | 2.5 | 1.0 | 1.7 | 21.5 |
| All other sectors (indirect) | 8.0 | 1.6 | 14.0 | 23.2 | 9.0 | 2.3 | 11.4 | 6.4 | 4.0 | 80.1 |
| Total | 18.4 | 3.4 | 31.4 | 52.6 | 17.6 | 4.5 | 20.1 | 14.1 | 8.9 | 171.1 |
| Total/Direct | 1.8 | 1.9 | 1.8 | 1.8 | 2.0 | 2.1 | 2.3 | 1.8 | 1.8 | 1.9 |
| Total/Tonne (\$) | \$20,700 | \$16,500 | \$15,500 | \$27,700 | \$35,800 | \$7,100 | \$6,700 | \$400 | \$3,700 | \$3,801 |

^a Excludes the River fishery and the Commonwealth managed fisheries: south-east non-trawl, tuna and deep water trawl.

^b Downstream activities include net value of processing, transport services and retail/food services trade.

^c Full time equivalent jobs. Direct employment in the fishing sector was comprised of 642 full-time and 1,375 part-time, that is, 2,017 jobs in total.

Source: EconSearch (2008b).

Appendix Table 3.7 Economic rent in South Australian commercial fisheries, 2006/07 (\$m)

| | Abalone | GSV Prawns | SG & WC Prawns | Sth'n Zone Rock Lob | Nth'n Zone Rock Lob | Blue Crabs | Marine Scalefish | Sardines | Lakes and Coorong | All Fisheries ^a |
|---|-------------|-------------|----------------|---------------------|---------------------|------------|------------------|-------------|-------------------|----------------------------|
| Gross Income | 33.1 | 3.3 | 39.4 | 78.8 | 18.0 | 5.6 | 19.8 | 18.5 | 7.1 | 223.7 |
| Less Labour | 8.5 | 1.2 | 13.2 | 21.8 | 7.7 | 1.4 | 8.8 | 7.6 | 2.8 | 73.0 |
| Less Materials & Services | 6.4 | 1.1 | 9.5 | 16.2 | 7.3 | 1.8 | 9.1 | 6.5 | 2.0 | 60.0 |
| Less Depreciation | 2.3 | 1.3 | 6.4 | 8.0 | 3.1 | 0.3 | 3.8 | 3.0 | 0.7 | 29.1 |
| Less Opportunity Cost of Capital (@10%) | 1.2 | 1.0 | 5.8 | 5.9 | 2.4 | 0.3 | 2.7 | 3.9 | 0.5 | 23.7 |
| Economic Rent | 14.8 | -1.4 | 4.5 | 26.9 | -2.6 | 1.7 | -4.5 | -2.5 | 1.1 | 37.9 |

^a Excludes the River fishery and the Commonwealth managed fisheries: south east non-trawl, tuna, deep water trawl.

Source: EconSearch (2008b).